Der Totengräber

Klabund

ADOLF BÜRDEKE
BUCHHANDLUNG
& ANTIQUARIAT.
ZÜRICH
OBERE KIRCHGASSE 25

Klabund / Der Totengräber

Verlag der Schönen Rarität Kiel
1919

G2293977

XLB
16[illegible]02

Das Drama „Der Totengräber“ von Klabund erſchien in einmaliger numerierter erſter Auflage von 500 Exemplaren April 1919 im Verlage der Schönen Rarität Kiel. Die erſten fünfzig Exemplare auf beſtem Papier wurden vom Dichter ſigniert. Dieſes Exemplar trägt die Nummer

470

PT 2617
E6 T68
1919
MAIN

Max und Irene Heberle zu eigen.
Geſchrieben im Dezember 1918.

Alle Rechte, insbeſondere die der Überſetzung, vorbehalten.
Das Recht der Aufführung vergibt der Dichter.
Copyright 1919 by Die Schöne Rarität (Adolf Harms) Kiel.
Druck von Willibald Nitſche, Weißenfels a. S.

2553

Figuren:
Der alte Totengräber
Der junge Totengräber
Der junge Herr
Träger mit Sarg

Friedhof, Herbſtnachmittag

Dem Andenken meines Engels

Junger und alter Totengräber ſchaufeln an einem Grab.

Junger Totengräber:
Der Sommer hob ſich lächelnd auf das Haupt
Den blauen Kranz der leuchtenden Cyanen.
Verſonnen wehn des Herbſtwinds erſte Fahnen,
Die weißen Fäden, ſonnenglückbeſtaubt.
Begnadet ſchwanken in den ſchweren Gluten
Die blonden Aehren holder Frucht beſchwerten.
Die ſelig einſt ſich nach den Strahlen kehrten,
Beugen das Knie, wo ſie als Kinder ruhten.

Alter Totengräber:
Die Sonne iſt erfüllt von Mövenſchreien,
Die braunen Blätter taumeln trüb zur Erde.
Die Menſchen gehen gern gedrängt zu zweien
Mit des Septembers grämlicher Gebärde.
Ein Hund bellt hündiſch aus den kahlen Kolken,
Von ſchauerlicher Einſamkeit umgeben.
Ueber den Menſchen wandeln weiß die Wolken
Und wiſſen nichts von Herbſt und Tod und Leben.

Junger Totengräber:
Der Herbſt iſt ſüß. Ich trinke ihn wie Wein.
Ach einmal werd ich dunkel und beſeſſen
Von Würmern und vom Engerling zerfreſſen
Der arme Bruder dieſer Schweſter ſein.

Er ſchaufelt.

Alter Totengräber:
Die Blätter raſcheln ſchon das zehnte Jahr,
Daß ich an Gräbern wie ein Bergmann grabe.

Und ich benehme lächelnd und gehabe
Mich in den Schenken wie ein Bürger gar.
Kein Schatten fällt von dieſen ſchwarzen Kreuzen
In meines Zimmers Wohlgeborgenheit.
Wenn es von Raben, Eulen oder Käuzen
Die ganze Nacht vor meinem Fenſter ſchreit,
Erwach ich nur, um höchſtens mich zu ſchneuzen,
Denn gegen Eulenruf bin ich gefeit.
Ihn überſchreit mein jüngſtes Kind im Traum.
Der Totenwurm tickt nicht in meinem Raum,
Und Furcht verebbt vor mir wie Wellenſchaum.

Junger Totengräber:

Mich aber ſchauderts, wenn die Raben krächzen,
Und wenn des Nachts im Mond ein Schatten ſteht.
Ich atme ſchwer. Und meine Seufzer ächzen,
Bis ſie ein Lächeln von der Wand verweht.
Dort hängt im fahlen Licht, im goldnen Rahmen
Mein Sinn- und Sternbild, dem mein Aufblick gilt.
Ich will im Guten nimmermehr erlahmen,
Ich bin zum Guten immer mehr gewillt.
Glänzt ihre Stirn mir nur, die ewige Ampel,
Und ſonn ich mich in Sonnen ihres Blicks —
Entrudert Charon und verdunſtet Styx.
Erhorch ich ihren Schritt nur auf dem Kies,
Spitz ich die Ohren wie der Haſe Lampel;
Ein kleines Tuch, das ſie einſt fallen ließ,
Stahl ich — damit als Hoſtie ichs verehre.
In jeder Kirche wirft es mich aufs Fließ,
In allen Erkern bau ich ihr Altäre.
Ja überall blüht Erd- und Himmelswonne,
Denn überall anbet ich die Madonne!
Muß ich in Pſalmen nicht das Leben preiſen,
Da ſie doch lebt im Lichte, das mir glänzt?
Sie iſt es, die mit falterhaften leiſen
Gebärden meine ſchwere Schwermut kränzt.
Laß meinen Arm, der ſchwer die Schaufel ſchwang,
Sich vogelleicht in goldne Herbſtluft heben.
Sing, liebe Seele, deinen Grabgeſang:

Sie lebt ſchon tauſend Ewigkeiten lang,
Und tauſend Ewigkeiten werd ich leben!

Alter Totengräber:

Haſt du gemeſſen in die Läng und Breite
Das Grab, ob es der Vorſchrift auch entſpricht?
Im Magiſtrat ſind wunderliche Leute,
Wenn einen böſen Greis der Haber ſticht,
Er mißt das Grab dir nach! Drum miß und ſchreite
Du ſpringſt mir viel zu weit — und fühlſt es nicht.
Das Grabwerk will bedächtiges Geſinde,
Daß jeder ſeine rechte Ruhſtatt finde.
Wie würde wohl der brave Bürger geiſtern,
Wenn er in einem Grab, das viel zu groß
Mit wehendem Gewand und ruhelos
Gezwungen wär, ein Rieſiges zu meiſtern?
Sein iſt die hölzerne, die ſtarre Pflicht,
Die ſich prismatiſch an den Wänden bricht.
Fünf Schritte lang, zwei ſchmale Schritte breit,
Will es des Bürgers Wohlerzogenheit.

Junger Totengräber:

Ich aber, ſtürb ich, wirbelte und wollte
Die ganze Erde mir zur Grabesſtatt!
Daß ich als Geiſt in tiefſte Tiefe tollte,
Und daß mein runder Totenſchädel rollte
Vom tiefſten Meer zum höchſten Ararat.
Heut ſchwämmen Fiſche zwiſchen meinen Rippen,
Und morgen hing der Mond mir im Gebein.
Heut regten Falter ſich auf meinen Lippen
Und morgen würd ich Weg für Würmer ſein.
Es wär im Tode auch mein heilig Streben:
Die Lebenden lebendig zu beleben!

Alter Totengräber:

So ſpricht der Jüngling, den noch Seufzer rühren!
Dem ſelbſt der graue Nebel zaubriſch naht.

Ihm ſcheint der Finſterniſſe düſtrer Pfad
In hellſte Helligkeiten noch zu führen.
Das Alter weiß, wenn es hier Erde wirft,
Daß es vergeblich nach dem Grunde ſchürft.
Wir werfen Erde, mit der Erde: Kerfen.
Wie viele Haufen Erde warf ich ſchon!
Ich weiß gewiß, es wird mein Enkelſohn
Noch immer Erde in die Lüfte werfen.
Wozu? Verlebte Leiber zu bedecken!
Wir leben, ach! um ſterbend zu verrecken.

Junger Totengräber:

Du lügſt! Der Tod iſt eine ſchwarze Pforte,
Die uns verhüllt in neue Räume weiſt.
Wie jemand, der durch eine Höhle reiſt,
Und dem der Glaube an das Licht ſchon dorrte,
Auf einmal jubelnd die Erlöſung preiſt;
Kaum traut er ſeinen bunt beblinkten Blicken:
Ein reinerer Himmel will ihn hoch beglücken!
So iſt der Tod gewiß ein andres Leben.
Wir wurden Wolke. Stern. Vielleicht auch Tier.
Doch wiſſe, Alter: wir ſind immer wir,
Und was ſich immer mag mit uns begeben,
Ob wir verſtauben oder mit den Reben
Im neuen Frühling blühend uns erheben:
Der Geiſt, der dieſes Herz hier pochen läßt,
Ruft immer neu zum Auferſtehungsfeſt.

Alter Totengräber:

Vergeßt das Schaufeln nicht! In einer Stunde
Wird hier ein ſchwarzer Sarg hinabgekettet.
Schon macht der junge Herr dort ſeine Runde
Und forſcht, ob ſein Geliebtes ſanft gebettet.

Junger Totengräber:

Ich höre Unken rufen, Eulen ſchrein.
Es iſt doch blauer Tag? Und was verdunkelt

Die Sonne ſich mit blaſſem Nebeltuch?
Hat ihre Fackel nicht noch hoch gefunkelt?
Wer mag, der ſie im Sande löſchte, ſein?
In meinem Mund gefriert ein harter Fluch —
Doch iſts an uns, den jungen Herrn zu tröſten —

Alter Totengräber:
Er ſei getröſtet. Denn ſein Weib erlöſten
Die leiſen Genien vom ewigen Leid.
Ein heißer Sommer war dem Glück geweiht;
Der Herbſt hat dieſes Aehrenglück zerhaun.
Wie lange wird es dauern, Beſter, glaubt,
Da ruht in ihrem Bett ein andres Haupt,
Und war das erſte blond, ſo iſt es braun.
Wer mag ſein halbes Leben unbeweibt ſein
Und halb beſeelt und gleichſam halb beleibt ſein?
Die Pönitenz verhindert das Verdaun.
Ein warmes Weibchen nachts im Arm zu halten
Iſt beſſer als im kalten Grab erkalten.

Junger Totengräber:
(zu dem wandelnden Herrn)
Verzeihen Sie, daß mir mein Amt gebietet,
Ihr liebſtes Licht mit Erde zu beſtreun!
Wär ich ein Nagel, jenem Sarg vernietet,
Ich würde nicht vor dem Begräbnis ſcheun!
Ich wär bis an den jüngſten Tag gemietet
Den Gliedern Wächter, bis ſie ſich erneun. —
Ich kann nur arme Worte ärmlich ſtammeln
Und Tränen zu des Grabs Begießung ſammeln.
Ich bin ein ſcheuer Menſch wie Sie, geboren
Von einer Mutter, die in Wehen ſchrie.
Und bin zum Gräber Ihres Glücks erkoren
Und bin an dieſen wilden Schmerz verloren
Beſinnungslos und ſinnlich wie ein Vieh.
Verzeihen Sie, mein Herr, und glauben Sie,
Daß wie ein Zwilling Ihre Qual ich teile,
Daß herzlich ich in Ihrem Herzen weile

Und daß in aller Ewigkeit ich nie
Das Elend dieſes Tags vergeſſen werde.
Auf meiner Bruſt ja laſtet dieſe Erde,
Die ich verdammt bin, auf Ihr Glück zu häufen.
Ich Ketzer! Will kein Gott mich wiedertäufen?

Der junge Herr:

Ich höre die Muſik, nach der wir tanzten,
Ich hör dein blaues Seidenkleid.
Auf welche himmelhohen Kuppeln pflanzten
Wir nicht das Banner der Glückſeligkeit.
Ich kann nicht faſſen dieſe leere Schale,
Die ich einſt voll durch die Paläſte trug.
Es ſind ſo viele Seufzer hier im Saale,
Seitdem ich dich um deine Lippen frug.

Alter Totengräber:

Erwachen Sie! Sie ſchweben in Regionen,
Aus denen oft es kein Zurück mehr gibt.
Bedenken Sie, daß Sie auf Erden wohnen,
Und daß ſo manche Seele Sie noch liebt.
Sie haben in den auferlegten Pflichten,
Ihr Tag- und Nachtwerk redlich zu verrichten.

Der junge Herr:

Es nannten viele Verſe deinen Namen
Und manche Maler haben dich gemalt.
Die ſchmerzlich bleich zu deinem Lächeln kamen,
Sie gingen ſingend und von dir beſtrahlt.
Es ſchloſſen leicht ſich ſelbſt die ſchwerſten Wunden,
Der arme Sünder ward nicht mehr verdammt.
Und in den beſten ihrer dunklen Stunden
Biſt du in ihren Blicken aufgeflammt.

Junger Totengräber:

O wie ich Sie begreife, daß Sie taumeln!
Daß Ihre trockne Lippe kindlich lallt!

Von Kreuzen ſteht ein fürchterlicher Wald
Hier auf dem Friedhof. Kahle Kränze baumeln.
Und mancher Kranz wie eine Peitſche knallt.
Auf manchen Gräbern wächſt der wilde Roggen.
Aus manchen Gräbern klingen grelle Glocken.
Und mancher Grabſtein wie ein Büßer wallt.
Der Karneval des Todes iſt ſo ſchaurig.
Und mehr als Sie den Henker, Herr, bedaur ich,
Der arme Menſchen wandeln muß zu Engeln,
Indem er ſie wie Blumen köpft mit Dengeln.

Alter Totengräber:

Betrachten Sie nicht als Vermeſſenheit
Die Bitte, ſich des Herzſchlags zu erinnern.
Steigen nach innen Sie! In Ihrem Innern
Sprießt ſchon die Wurzel der Vergeſſenheit.
Schon will die Lunge wieder tiefer atmen,
In ihrem Hauch verwehn die ſchönſten Fatmen.
Sie gehn vom Grabe durch die lauten Gaſſen,
So manche Hand wird zart nach Ihnen faſſen.
Vielleicht Sie haben einen kleinen Pudel,
Der kleine Pudel will gewartet ſein.
Vielleicht auch dringt ein heitres Kinderrudel
Mit Reifenſpiel in Ihre Trauer ein.
Der Milchmann ſchreit. Es rauchen grau die Eſſen.
Ich weiß: Sie werden Ihren Schmerz vergeſſen.
Denn gäb es das Vergeſſen nicht auf Erden:
Es würde nicht ein Menſch geboren werden!

Der junge Herr:

Es iſt kein Troſt dem Manne, dem der Bote
Die dunkle Nachricht übern Eſtrich rief.
Wie iſt auf einmal Herbſt? Woher der rote
Und wilde Weinbuſch, der noch ſommers ſchlief?
Sie tragen durch die Räume eine Tote,
Wo geſtern ſie noch leicht und lächelnd lief.
Ach, wem der Menſchheit einziger Menſch geraubt iſt —
Wie der mit Erdenaſche ganz beſtaubt iſt.

Mir bleibt nichts anderes als dich zu ſuchen
In Welt und Wieſe, Winternacht und Wald.
Halt deinen Schatten ich hier bei den Buchen?
Ach ich umarme eine Fehlgeſtalt.
Ich atme dich in Düften und in Ruchen.
Ich hör ein Lachen, das aus dir erſchallt.
Wo biſt du, Engel? Gib ein goldnes Zeichen,
Daß meine Worte deinen Thron erreichen.
Ich weiß gewiß: es wird an einem Tage
Nach dir die Sehnſucht mich zerreißen ganz.
Ich bin ja nur noch Tränenkrug und Klage.
Von deinem Glanz ein ſchwacher Widerglanz.
Ich wünſchte, daß ich in die Wolken rage,
Dir nah zu ſein beim edlen Engeltanz.
Erflehe doch von deinem Liebesgotte,
Daß er zu dir mich hebe aus der Rotte.
Wohin ich ſehe, ſeh ich deine Linien:
Den Vogel dort bewegen ſie im Flug.
Sie ſchmiegen ſich an jene ſchwarzen Pinien
Und bilden jenen Rauch am Gotthardzug.
Dich träumte Deutſchland. Doch in Argentinien
Iſt eine Kirche, die dein Bildnis trug.
In den Madonnen italieniſcher Meiſter
Regiert dein Lächeln und das deiner Geiſter.
Der Gott, dem wir die Seligkeit verdanken,
Das höchſte Glück verſagte er uns doch:
In eins verſchlungen wie die Rebenranken
Zu wandeln durch das Regenbogenjoch.
Warum nicht ſanken unſre jungen ſchlanken
Leiber gemeinſam in das dunkle Loch?
An deinem Grabe ich das Unkraut rode.
Der Ueberlebende ſtirbt viele Tode.
Laß mich an meinen Schmerzen blaſſer ſiechen,
So ſterb ich ſelig, Blondeſte, an dir.
Wie ſchneckenhaft die trüben Tage kriechen!
Wie langſam blättert es ſich im Brevier!
Werd ich im Buſch den neuen Frühling riechen?
Der Winter winkt mit weißem Laken mir.
Die letzten Töne meiner Harfe ſtimm ich:
O ſtille meinen Durſt nach Tod und nimm mich!

Junger Totengräber:
Erzählen Sie von Ihrer jungen Frau,
Daß ich mit Tränen mich wie eine Wabe
Erfülle und daß ich ſie tief begrabe
In meinem Herzen. Daß die Welt ich ſchau
Nur noch mit Ihren Augen, den verweinten.
Mit Ihrer Fauſt ſie packe, der verſteinten.
Wenn wir uns brüderlich an Händen halten,
Sind wir befähigter den hohen Sinn,
Die hohe Stirn der holden Königin
Zu bilden, zu erkennen, zu geſtalten.

Der junge Herr:
Man brachte ſie, die Blondeſte von allen,
Vor einer Woche in das Hoſpital.
Noch einmal hört ich ihr Gelächter ſchallen,
Dann riß es wie ein Strang mit einem Mal.
Ich mußte ſchluchzend in die Kniee fallen
Und blickte in ein unergründlich Tal.
Und meine losgeriſſnen Augen ſchweifen
In einer Tiefe, die ſie nicht begreifen.

Alter Totengräber:
Mir iſt Symbolik dieſer Art geläufig.
Sie ſcheint beim Scheiden von Verwandten häufig.

Junger Totengräber;
So ſprechen Sie doch, Herr, Sie ſagen: blond?
Nicht wahr: von einer ewigen Sonn beſonnt?
Und ihre Augen wie der Frühling blau?
Ach, Herr, auch *ich* lieb eine blonde Frau!
Auch ich bin von dem blonden Mond beſtrahlt,
Auch meine Fenſter ſind mit Blau bemalt.
Auch meine Hände irren oft in Strähnen,
Die ſie ſo leicht wie Spinneweben wähnen.
Auch meine Ohren horchen auf den Gang
Der Engelhaften, der wie Cymbelklang.

Zwar bin ich in der erſten Liebe Bangen
Der Wirklichkeit nur zaghaft nachgegangen.
Doch meine Sehnſucht hat mich ganz beglückt.
Ich ſuchte, kaum zu ſehn, ich war entzückt
Und meinem dunklen Handwerk ganz entrückt.
Ach das Bewußtſein, daß die ewig Blonde,
Die Blondeſte in meinen Sinnen lebt,
Belebt mich, wenn der Tod auf ſeiner Ronde
An Gräbern ſteht, die die Verzweiflung gräbt.

Der junge Herr:
Bewahrt Zu-friedenheit in Eurem Sinn!
Mein Friede iſt, ſeit ſie entſchwebt, dahin.

Junger Totengräber:
Wie hieß die Blonde, Herr, die Euer Weib war?
Die Euer Echo, Euer zweiter Leib war?
Laßt mich den ſchwärmeriſchen Namen kennen:
Ich will ihn neben meiner Freundin nennen!

Der junge Herr:
Ihr Name war, wie wenn von Bogens Sehne
Statt eines Pfeiles eine Lerche tönt.
Er ſingt, er ſeufzt, er ſummt, zuweilen dröhnt
Er wie Poſaune. Und wie Herbſtwind ſtöhnt
In Dämmrung er. Er grüßt wie junge Hähne
Das Morgenrot, das ſeinen Ruf verſchönt.

Junger Totengräber:
Der Name, Herr?

Der junge Herr:
Mein Mädchen hieß Irene.

Junger Totengräber:
(jubelnd)
Irene! Herr! So heißt *mein* Mädchen auch!
(abbrechend)
Vergebt, daß Euren Jammer ich mißachte,
Da der Geliebten glücklich ich gedachte.
Daß ich vor Seligkeit den Namen lachte
Recht wie ein Knabe frech und wie ein Gauch.
Wenn eine Frau, die ſich Irene nennt,
Nicht mehr als Fackel dieſes Lebens brennt,
Wie darf denn ich dem Leben mich verbünden?
Des Todes Diener ſollt ich Tod nur künden.

Alter Totengräber
(halb aus dem Hintergrund zum jungen Totengräber):
O daß ein guter Engel Euch bewahre,
Der Zeuge Eures Untergangs zu ſein.
Kommt Euer ſchönes Mädchen in die Jahre,
Wird ſie ein ſonderbarer Spiegel ſein.
Die Jungen ſind wie Heilige bleich und wächſen.
Aus Runzeln deutet ehſtens man auf Hexen.

Junger Totengräber:
Wo ſtand der Tempel, den Sie ihr errichtet?

Der junge Herr:
Hier dicht am Totengräberbau. Geerbt
Hatt jenes Haus ich, das der Schatten färbt
Von jener dunklen Ulme.

Junger Totengräber:
                    Schleppt und ſchichtet
Ihr Steine plötzlich, die mich faſt zermalmen,
Fuhr Hagelwetter jäh in meine Halmen?
Bin ich verwirrt? verirrt? Vielleicht der Wahn
Kräht im Gehirn wie ein verlaufner Hahn?

Es rauſcht die Flut, und ihr entſteigen Schwäne.
Mir wird ſo ſchwach wie einem kleinen Kind.
In jenem Hauſe wohnt auch die Irene,
Nach der mein Sinnen unaufhörlich ſinnt.
Gewiß, Ihr werdet die Bewohner kennen,
(Ich frug den ganzen Namen nie der Frau,
Ihr Bild genügte meinem Tempelbau:)
Zwei Frauen wohnen dort, die ſich Irene nennen!

Der junge Herr:
In jenem Hauſe war nur eine Frau,
Sie ſtand des Nachts wohl oft auf Sternenſchau
Im Fenſter, das dem Friedhof zugewandt war.
Sie ſah zum Stern, von dem ſie einſt geſandt war.
(Zieht ein Bild)
Seht dieſes Bild!

Junger Totengräber
(ſchreiend)
Sie iſts, es iſt Irene . . .

(Pauſe)

Reicht Euren Arm, daß ich auf Euch mich lehne.
Ihr ſeid mein nächſter Bruder nun. Ich muß
Euch lieben und umfahn für jeden Kuß,
Mit dem das holde Weſen Ihr beſeligt,
Euch lieben muß ich, daß mit Euch verehlicht
Sie die Erfüllung ihrer Schale fand.
Es läuft von Euch zu mir ein rotes Band
Mit Blut gefärbt: mit ihrem Blut gefärbt.
Als ihren Namen fiebernd ich gekerbt
In jene Ulme, ward ich Euch verwandt.
Nun da im Grab hier Blut von meinem Blut
Und Leib von meinem Leibe künftig ruht,
Nun erſt wird dieſer Hof mein Heimatland.
Gab ihre Seligkeit ein Kind Euch?

Der junge Herr:
Einen Sohn!

Junger Totengräber:
So iſts mein Sohn auch, und für ihn im Frohn
Will ich die Leiche meines Lebens ſchleppen
Wohl über tauſende von Marmortreppen,
Bis einſt an ihrem engelhaften Thron
Wir Arm in Arm vor der Madonna knien:
Wir lebten nur für dich,
Wir ſtarben nur für dich
So nimm uns hin!

(Träger mit Sarg nahen ſich von fern. Leichte Dämmerung. Abendrot.)

Ihr halft zum Leben ihr. Und ich zum Tod.
Es naht ihr Sarg. Es flammt das Abendrot.
Der Alte ging. Nehmt die geſtürzte Schippe
Und tretet in der Totengräber Sippe.
Die wir am liebſten von den Menſchen haben:
Die Schweſter laß uns brüderlich begraben!
Was blieben von der Kelter uns? Die Treber.
Dies iſt des Menſchen allerletzte Not:
Sein Tod iſt Leben, und ſein Leben tot.
Er iſt des eignen Lebens Totengräber.

(Die Träger laſſen den Sarg hinab. Die zwei beginnen zu ſchaufeln.)

Der junge Herr:
(hält im Graben inne)
Ihr, die Ihr ſtets mit Tod umgeben ſeid,
Ihr wißt das Leben wie ein Herr zu nehmen.
Ich aber bin ſo ſchwach und muß mich ſchämen,
Daß meine Lippe wie ein Springbrunn ſpeit
So leere Worte, mögen ſie auch glänzen
Und klingen in den zierlichſten Kadenzen.
Ich kenne meines Nichtſeins Nichtigkeit.
Wie eine Wünſchelrute fühl ich beben
(zeigt ins Grab)
Mein Herz nach dieſem Tod — nach dieſem Leben.
Wie bald der Winter ſeine Flocken ſchneit
Auf ihr und mein beſcheidenes Gedächtnis!

Auf Eure Arme leg ich ihr Vermächtnis:
Das Kind: der Zukunft zauberiſche Zeit!
(Ins Grab):
Du wurdeſt zur zerfreſſendſten Chimäre,
Ich winsle wie ein angeſchoſſner Hund.
Ich gab dir meinen Gott und meine Ehre,
So gib, Entſetzliche, mir deinen Mund!
Mit meinen ſchon dem Tod verkauften Gliedern
Betret ich ſchwankend deines Leibes Steg.
O wolle im Geringen nur erwidern
Die Liebe, die ich dir zu Füßen leg!

(kleine Pauſe)

(nach oben):

Noch einmal gib dem Auge ſeine Pfade!
Noch einmal laß der Fauſt die Steuerung!
In Demut zeigt ſich des Erlöſers Gnade,
Und unſrem Atem blüht Erneuerung.
So mancher dreht beſtürzt am falſchen Rade.
Ihm fehlt des Blutes Blitz: Befeuerung.
Nur aus dem Herzen, daß ſich eiſern ſchweißt,
Entfährt der heilige, der harte Geiſt.
Ich will mich nur noch aus mir ſelbſt begreifen.
Die Uhr ſteht ſtill. Die ſandige Stunde rinnt.
Gebirge mag ſich weißer ſeitwärts ſchweifen.
In Höhlen hauſt der Eukalypthuswind.
Die Bücher werden wie die Aepfel reifen,
Wenn Süden nur den Sonnenſtrahl beginnt.
O Tal der Trübſal! Scheue Oertlichkeit!
Die Nebel ſteigen. Abſchied ſteht bereit.
Verſuche niemand, mich zurückzuhalten.
Die Wolke winkt. Ich habe frei gewählt.
Schon fühl ich marmorn meine Stirn erkalten,
Und meine Hände fühl ich faſt geſtählt.
Ich bitt, mein kleines Erbe zu verwalten,
Den Bruder, dem es nicht an Würde fehlt.
Und meines Herzens letzte Kantilene,
Mein letzter Seufzer jubilier: Irene!

Junger Totengräber:
Der Friedhof zeigt mir hundert Sarkophage,
In jedem Sarkophag ruhſt du.
O ſchließe meiner Lippen karge Klage
Mit deinen reinen Engelküſſen zu.
Erſcheine einmal noch in der Sekunde,
Die mich von hinnen ruft, im heiligen Schein,
Und laß mich ſterben ſanft an deinem Munde,
So will ich gerne ganz vernichtet ſein.

Der junge Herr:

Wer wird es glauben, daß an meinen Schmerzen
Um dich verdürſtet ich dahingeſiecht?
Die Menſchen haben heut metallne Herzen;
Ihr Gott iſt eine Schlange, welche kriecht.
Sie leſen ketzeriſch von großen Mythen,
Von Hero, der Leander ſich verdang.
Sie wundern ſich, daß einmal Menſchen blühten,
Daß eine Menſchenlippe einmal ſang.
Ungläubig leſen ſie, daß der Geliebte
Den Abſchied der Geliebten nicht ertrug,
Daß er ein Staub in alle Winde ſtiebte,
Daß ihn ihr Sterben mit dem Blitz erſchlug.
Es geht mit mir wie einem Traum zu Ende,
Irene ruft zur heiligen Heiterkeit,
Und unſre Liebe leuchtet als Legende
In eine beſſere und goldne Zeit.
(Der junge Herr fällt am Grabe zuſammen.)

Junger Totengräber:
(auf die Schippe gelehnt)
Der Mond reckt ſeine bleiche Totenhand
In den ergrauten Tag. In hellem Ocker
Glänzt weſtlich noch ein kleiner Himmel. Locker
Ein Haufen Frauenbrüſte liegt das Land.
(Schweigt einen Augenblick)
Nun biſt du tot wie ſie. Und aus der Flanke
Sickert das rote Blut in ſchwarzen Sand.
Auch über Götter waltet die Ananke

Mit unerbitterlich geſtrenger Hand.
Es wird an dieſes Lebens Kreuz geſchlagen
So Gott wie Menſch, und beider Traum: der Heros.
Es ſpannt auch dich an ſeinen Sichelwagen
Der heilige Geiſt des Höllentodes Eros.

(Er beginnt neben dem erſten Grab ein zweites Grab zu ſchaufeln.)

Jeder ehrt den Gott, der ihm gemäß iſt,
Jeder findet Geiſt, wo ein Gefäß iſt,
Und er ſchlürfe, ein geliebter Zecher,
Tieflebendiges aus lebendigem Becher.
Dieſes iſt das Wahre; ſonſt iſt keines:
Zwei war eins und werde wieder eines.

(Er ſchaufelt. Der Vorhang fällt.)

Über weitere Dichtungen von Klabund unterrichten Proſpekte und Verlagsverzeichniſſe der Verlage: Erich Reiß-Verlag Berlin, Rolandverlag München, Inſelverlag Leipzig, Dresdner Verlag von 1917.

7.5ii*

U.C. BERKELEY LIBRARIES
C024945362

U.C. BERKELEY LIBRARIES
C024945362

PUBLIC HEALTH LIBRARY

BERKELEY
LIBRARY
UNIVERSITY OF
CALIFORNIA

TOWARDS 2000 AD
INDIAN HEALTH ECONOMY AND POLICY

TOWARDS 2000 AD INDIAN HEALTH ECONOMY AND POLICY

S. CHANDRASEKHAR

P. L. SANJEEVA REDDY

K. RANIGOPAL

Foreword By

MALCOLM S. ADISESHIAH

Formerly Deputy Director General UNESCO and Member of Parliament and President of the Indian Economic Association

CHUGH PUBLICATIONS
ALLAHABAD — INDIA

o4056383

PUBLIC HEALTH

Published By

CHUGH PUBLICATIONS
2 Strachey Road, Civil Lines
ALLAHABAD—INDIA

First Published 1989

(C) Authors

ISBN 81-85076-68-5

Printed at Kitab Mahal (W.D.) Private Ltd., 15 Thornhill Road,
Allahabad

RA410
.55
I4C48
1989
PUBL

FOREWORD

We have today a ministry called the ministry of Human Resources Development. Human Resources Development is a function of the interaction of health, education and training, sports and culture and scientific research and development against the economic and social facets of a society. The start of human resources is health, for without it, all else is impossible. Our ministry is not really a ministry of human resources development, because health is not a part of the ministry : it is in reality only the old ministry of education dressed up in a new garb. Hence the first need for developing our human resource is to develop an interface between health, education and research and development.

Health is no longer just freedom from disease as was once believed to be its meaning and content. For one thing one can be disease free and yet not healthy in the sense of being happy and content. Equally one can be a happy person even with a debilitating disease. What Health means, and in particular the goal of Health for All by 2000 AD, which this monograph elaborates on in relation to one part of India — the State of Andhra Pradesh — is "the complete integration of all plans for health and human development with the overall national socio-economic development process and particularly in the more closely health related sectors like drugs, pharmaceuticals, agriculture and food production, rural development, education and social welfare, housing, water supply and sanitation, prevention of food adulteration and conservation of the environment." Health for all is a part of the urgency of Sustainable Development.

All this is rather far from the time (of my boyhood days) when health was equated with more doctors, more nurses and more hospitals, which were dominated by physicians who built a health care system around themselves. Today we know that the goal of Health for all involves for its realisation the action programmes against poverty, poor housing, poor environment, unsafe drinking water, hunger, malnutrition and under nourishment, high fertility rates, illiteracy, unemployment, low income, unjust land tenures, inaccessible social services and distorted life styles.

Against this formidable list of lacks which make for ill health for all, the monograph quite rightly starts the programme of Health for All by 2000 AD in India and in Andhra Pradesh with the universal provision of comprehensive primary health care services, which involve a re-structuring of the existing approach to education and training of medical and health personal and the infrastructure back of them. Such a health infrastructure of primary health centres and the education and training of the personnel to man them is within our means, both that of the government and voluntary agencies.

I commend this very useful and practical monograph to all people, practitioners and academics, who need to be involved in realising the realisable goal of Health for All by 2000 AD.

14th March, 1989

(Malcolm S. Adiseshiah)

FORMERLY DEPUTY DIRECTOR
GENERAL UNESCO

AND

MEMBER OF INDIAN
PARLIAMENT

AND

PRESIDENT OF THE INDIAN
ECONOMIC ASSOCIATION

PREFACE

The problem of health and economic development of the developing economies has received world-wide attention, mainly in the much recent years. This is a late beginning, indeed ; but it has been marked with great intellectual activity and keen academic enthusiasm, particularly in the west. The stream of fresh literature on the subject in the last decade or so, has assumed enormous proportions, and much of it is normative and exploratory in nature. There is a great need for analyzing the implications of backwardness owing to the inadequate health status, and the impacts of providing better health facilities under the auspices of the government and other key agencies in respective economies, so as to evolve a health policy consistent with requirement. The fund of information and experience available in India are next to no other nation, and therefore, studies on the health economy of India are bound to have global significance. The present work relates to the relativities of health and related matters of the developing region.

Grateful thanks are due to the University Grants Commission for the generous financial support for the publication and to Mr. N. Lakshman Rao for typing the work.

S. CHANDRASEKHAR

P. L. SANJEEVA REDDY

K. RANIGOPAL

LIST OF TABLES

Table No	Title
2.1	Rates of Mortality in India
2.2	Percentage of Total Number of Deaths by Different Causes
2.3	Percentage Distribution of All Infant Death by Causes, All India (Rural) 1979-82
2.4	Morbidity Rate per 1,00,000 population During 12 Months
3.1	Percentage Distribution of Population by Age Groups in Andhra Pradesh, 1971 and 1981 Census
3.2	Percentage Distribution of population by Age Groups in Rural Areas of Andhra Pradesh 1971 and 1981 Census.
3.3	Percentage Distribution of population by Age Groups in Urban Areas of Andhra Pradesh 1971 and 1981 Census
3.4	Estimated Birth Rate, Death Rate, National Growth Rate, and Infant Mortality Rate in Andhra Pradesh 1976-85
3.5	Projected Values of Expectation of Life at Birth in Andhra Pradesh 1961-70 to 1996-2001
3.6	Estimated 'Age-Specific Death Rates' in Andhra Pradesh 1976-84.
3.7	Estimated 'Age-specific Death Rates' in Rural Areas of Andhra Pradesh 1976-84
3.8	Estimated 'Age-specific Death Rates' in Urban Areas of Andhra Pradesh, 1976-84
3.9	Percentage Distribution in and out-patients in Government Medical Institutions and Deaths of in-patients by major case groups 1983.
3.10	Malaria Cases Detected in Andhra Pradesh
3.11	National Filaria Control Programme in Andhra Pradesh
3.12	Incidence of Cholera and Gastro-enteritis in Andhra Pradesh
4.1	Number of Seats in MBBS and Post-graduate courses in Various Government Medical Colleges in Andhra Pradesh as on 1.4.1987.
4.2	Medical Educational Institutions and Rural Health Centres
4.3	Progress in Medical Care

4.4 Medical Institutions and the University of Health Sciences
4.5 Medical Institutions and the Vaidya Vidhana Parishad
4.6 Medical Institutions and the Health and Family Welfare
4.7 Medical Institutions under the Government Agencies as on 1.4. 1987
4.8 Government Medical Institutions and Beds in Rural Areas
4.9 Government Medical Institutions and Beds in Urban Areas
4.10 Medical Institutions in all agencies including local bodies
4.11 Beds, Doctors and Nurses and Population
4.12 Number of Specialist Hospitals
4.13 Number of Hospitals and Beds
4.14 Dispensaries and Beds in various states
4.15 Primary Health Centres and Sub-centres
4.16 Primary Health Centres and Sub-centres required in position in Tribal Areas
4.17 Number of Government Doctors and population
5.1 World population and Growth rates
5.2 Recent and projected declines in Third World birth rates
5.3 Death rates during 1950-2000
5.4 Trends in Population in Andhra Pradesh
5.5 Estimated Fertility Indicators and Age Specific Fertility Rates in Rural Areas
5.6 Estimated Fertility Indicators and Age specific Fertility Rates in Urban areas
5.7 Family Welfare Programme in Andhra Pradesh
5.8 Service Centres under Family Welfare in Andhra Pradesh
5.9 Targets and Achievements under Family Welfare
5.10 Targets and Achievements under Family Welfare by individual methods
5.11 Sterilizations in Andhra Pradesh
5.12 Sterilizations by months
5.13 MTPs performed and acceptance of contraception of MTP
5.14 Couple protection rates and number of births averted due to Family Welfare Programme
5.15 Rural/Urban break-up of sterilisations in IUD acceptors
5.16 Distribution of acceptors of vasectomy, tubectomy and IUD by age
5.17 Distribution of acceptors by number of living children
5.18 Number of couples effectively protected

5.19 Population, Area, Sex ratio, density and growth rates
6.1 In-take of calories from cereals in the Rural and Urban Areas
6.2 In-take of calories and protein in the comparable expenditure groups in the Rural Areas
6.3 In-take of calories and protein in the comparable expenditure groups in the Urban Areas
7.1 Goals for Health and Family Welfare Programmes
8.1 Number of Cases recorded in 1972 and 1983 in Andhra Pradesh

CONTENTS

Preface

INTRODUCTION 1

CHAPTER I : HEALTH, ECONOMIC DEVELOPMENT, AND WELFARE 5

1.1 Human Capital and Economic Development
1.2 Health, Economic Development and Welfare
1.3 Impact of Investments in Health
1.4 Health Economics
1.5 Health Capital
1.6 Health Care and Planning
1.7 Health Care in Andhra Pradesh

CHAPTER II : INDICATORS OF HEALTH STATUS — MORTALITY AND MORBIDITY TRENDS 17

2.1 Introduction
2.2 Mortality Trends
2.3 Mortality Research in India
2.4 Morbidity — Concept and Measurement
2.5 Trends in Morbidity
2.6 Morbidity Surveys
2.7 Importance of the Study of Mortality and Morbidity

CHAPTER III : MORTALITY AND MORBIDITY TRENDS —AN EMPIRICAL ANALYSIS 33

3.1 Mortality
3.2 SRS Vital Rates in Andhra Pradesh
3.3 Expectation of Life in Andhra Pradesh
3.4 Age Specific Death Rates in Rural and Urban Andhra Pradesh

3.5 Morbidity
3.6 In-patients and Out-patients per 1,000 population during 1963, 1973 and 1983
3.7 Percentage Distribution of in and out patients treated in all Government Medical Institutions by Case Groups.

CHAPTER IV : HEALTH FACILITIES IN ANDHRA PRADESH AND DETERMINANTS OF HEALTH STATUS 48

4.1 Introduction
4.2 A profile of the Facilities
4.3 Progress in Quantitative Terms
4.4 Rural water supply
4.5 Health Status — A Regression Analysis
4.6 Health facilities in 1988

CHAPTER V : POPULATION CONTROL — DETERMINANTS OF HEALTH STATUS 75

5.1 Population and Economic Development
5.2 Health and Development
5.3 Review of Literature
5.4 Population Growth and the LDCs
5.5 Population Growth and Health
5.6 Role of Family Planning Programmes
5.7 Population Growth in India
5.8 Population Control Programmes

CHAPTER VI : NUTRITIONAL STATUS AND HEALTH 113

6.1 Nutritional Status and Development
6.2 Nutritional Status and Health
6.3 Assessment of the Nutritional Status
6.4 Methodology
6.5 Nutritional Status and Rural and Urban Comparisons
6.6 Nutrition — Past and Present Status
6.7 Conclusion

CHAPTER VII : HEALTH POLICY 123

7.1 Introduction
7.2 Health Status and Policy
7.3 The Key Issues of Policy
7.4 Need for New Health Policy
7.5 Main Features of New Health Policy
7.6 Research and Administrative Co-ordination
7.7 Monitoring and Review
7.8 The Plan Strategy

CHAPTER VIII : HEALTH FOR ALL BY 2000 A.D. 141

8.1 Implications of Health Goals
8.2 Measures for Achieving Health Goals
8.3 Andhra Pradesh and Health Goals
8.4 Conclusion

APPENDIX I Expenditure on Health in Andhra Pradesh 152

Table 1 Budget provided under National Malaria Eradication Programme
Table 2 Expenditure on Medical, Health and Family Welfare in Andhra Pradesh
Table 3 Capital Expenditure on Medical, Health and Family Welfare in Andhra Pradesh

APPENDIX II Measurement of Nutritional Status 155

Table 1 Per capita Calorie Intake in Rural Andhra Pradesh
Table 2 Average Intake of Nutrients in Urban Andhra Pradesh
Table 3 Expenditure on Food in Rural Andhra Pradesh
Table 4 Expenditure on Food in Urban Andhra Pradesh
Table 5 Per capita Intake of Calories in Rural Kerala
Table 6 Per capita Intake of Calories in Urban Kerala
Table 7 Per capita Intake of Cereal in Andhra Pradesh
Table 8 Per capita Intake of Cereals in Kerala
Table 9 Percentage of population below poverty line on inter-state comparison

APPENDIX III Sample Survey of Sterilization Cases of Mass Sterilization Camp 167

APPENDIX IV Development of Health Services through Primary Health Care Approach 172

APPENDIX V Health Goals for 2000 A.D. — A District Approach 190

BIBLIOGRAPHY 245

INTRODUCTION

Given the nature of the population, the relativities in health standards are far too many,and the public expectations without commensurate sacrifices are diversified and variegated, and therefore, public policy successes are not unalloyed in the developing economy. These, in addition to the inavailability of knowledge, prevalence of large scale illiteracy, an utter lack of awareness, perpetual poverty and deplorable levels of living, an undiminished faith in tradition and outmoded systems of medicine, which surpass the possibilities of modern scientific comprehension, frustrate the governmental efforts to alleviate the health deficiencies, and work as the most effective scourge and subterfuges of the unfortunate mankind. And India is no exception to these matters.

An essential component of the welfare state is the administrative provision of measures capable of tackling sickness, control of the spread of diseases, suppression of epidemics, endemics, and communicable diseases, containment of population consistent with resources, and the promotion of health standards of various populations through programmed nutrition, with the least cost to the society. A Society based on such an idealized system spends least in the successive stages of its growth, while a society founded on social neglect, inadequate transfer of knowledge, awareness, human interaction, and improper governmental interference, spends most in time, and leaves a burdensome social legacy to generations, and for the very reason that health is an accepted form of wealth.

Also, a society which considers undue social priorities for development such that rapid industrialization is brought about in the shortest possible time, unmindful of the larger and wider repercussions, may inadvertently perpetuate and perpetrate social evils, atmospheric pollution, crime, congestion, urban decay, which result in social perversion, forced and distorted perspectives, disillusionment, psychological pressures, and tension-bound human traits culminating in physical and mental agony of the populations. It is therefore necessary that development perspectives shall consider the best suited priorities and realistic growth rates under all sectors, rural and urban, if the designs of development have to be translated into realisable goals. This is what is witnessed today in several advanced societies, where medical expenditures have bounced along with economic advancement. With the modern medical sophistry reaching its very pinnacle, the American economy has been spending around 20 per cent of the nation's bill for health care, which is more than $ 100 billion in 1987 itself on various medical tests, examinations, and analyses alone, where about 1400 different types of them are available from simple blood counts, CAT scans to electrocardiograms, and some 19 billion tests were performed last year. That means almost 80 tests for every man, woman and child, indicating that Americans are among the most analysed people in the planet. And yet, there is a growing feeling that the money is grossly ill spent.

In India, the circumstances are entirely different, and what the Government spends on health and medical care constitutes a minute and insignificant proportion of the total expenditure, looked at from the point of others. At the same time, while the Government accounts for the largest share, the concept of private medicine, private labs, nursing homes, and diagnostic centres, has been of a recent origin; and given the rate of growth of population and income inequalities, the role of Government spending, and the impact of public policy in health economics remains abounding and lasting in the provision of the very basics.

In India, the basics are immunization, family planning, control of morbidity, reduction of mortality rates, promotion of doctor-cum-para-med-cum-patient ratios, dissemination of knowledge of health care, collection and compilation of data on health status, and the most important of all, the child care. These are the essential constituents of planning for the development of the nation as well as the goals set for the turn of the century. And if these goals have to be effectively realised, the Governments at various levels, the private sector, the people, the public participants and the various voluntary agencies, have to evolve together an acceptable scheme of things, so that the administration part of the matters becomes feasible and practicable. At the same, it must be cautioned that these problems are interlinked and inextricably interwoven with the larger issues of social and economic development, and with such questions as ameliorating poverty, provision of sanitation, removal of congestion, provision of drinking water, provision of foodgrains, provision of housing and employment, and along side, incentives to good living.

The present work represents health status, health policy, and trends for future, in the State of Andhra Pradesh, which contains about one-tenth of the population of the whole nation, and provides the framework for the realization of the goals set for the economy in general, in the most modest form, and any attempt at an exhaustive analysis of things would surely be a Herculean venture.

And, in the effective realisation of the national goals set for itself, the role of Andhra Pradesh is bound to be substantial, by its sheer size and status. The region is one which has been in the grip of a wide variety of frequent occurrences of cholera, gastroenteritis, encephalitis, malaria, in addition to the significant reporting of cases relating to goitre, leprosy, tuberculosis, and others which could be brought under control if sufficient planning, and administrative attention are bestowed.

In the organization of this work, matters relating to the need for the building up of the much desired human capital for serving the requirements of development and the role of government and other agencies in the effective realization of the set objectives, have been analysed with some concern. The essence of this analysis, therefore, is to emphasise that the Government has a preeminent role in health administration, and that, that should be treated as a pre-condition to further progress in the other key sectors, which depend on the performance of the human factor, and that the choicest investments made today in this sector represent the very force and performance profile of the entire economy in its future. And the policy of health and the organization of its various components have to be viewed as an essential aspect of the overall public policy, so that this part of planning is not left, even inadvertently, in twilight.

S. CHANDRA SEKHAR.

P. L. SANJEEVA REDDY.

K. RANI GOPAL.

CHAPTER — I

HEALTH, ECONOMIC DEVELOPMENT AND WELFARE

1.1 Human Capital and Economic Development

It is now widely recognised that human capital plays a dominant role in the context of the development of the country as well as in the enhancement of the welfare of the people. In this connection, it is necessary to mention the views of Schultz regarding the importance of investment in human capital. He questions that, by some miracle, if a low income country were to acquire, as it were, overnight, a set of natural resources, equipment, structures including techniques of production, what would the country do with them, given the existing skills and knowledge of the people? He feels that the imbalances between the stock of human and non-human capital would be tremendous.[1] In many economics, production is increasing at a much faster rate than that which could be explained by the use of additional physical inputs and additions to labour force. It reflects the desires and aspirations of the people throughout the world, as they are anxious to add to the quality of life in terms of better performance and participation, and at the same time effectively combat against disease and illiteracy. Such an action is not only humanitarian but will make a major contribution to economic growth as well. At any point of time, a major proportion of the growth of an economy may be attributed to qualitative aspects of human factor and several studies have emphasized this truth.[2]

---

[1] Schultz, T. W. "Reflection on Investment in Man", *The Journal of Political Economy, Supplement*, October, pp. 2-3.

[2] Schultz, T. W., 'Investment in Human Capital', *American Economic Review*, March, 1961.

1.2 Health, Economic Development and Welfare

Health is one of the important components of human capital. The issue of health is of great importance both from the point of view of individuals and the Nation as well. Health status of the people is the key determinant of the welfare of the people and the pace of overall development. In developed countries, health problems are those related to the advanced age groups, whereas, in the under-developed countries, they relate to all the age groups, particularly the productive age group. The underdeveloped countries are characterised by a variety of diseases particularly those which are associated with poor living conditions, congestion and malnutrition. In these countries, lack of proper sanitation facilities, large scale prevalence of undernutrition, preponderance of various types of pollution, and lack of protected water supply, make matters worse. In addition, the related problems are, inadequate modern medical facilities, dominant traditional practices, and most of all, poverty, add to the low health status of the people. In order to ensure happiness and well being of the people and rapid development of the country, due attention needs to be paid to the issue of health, both in the advanced and backward countries.

The term health can be used in static or dynamic terms or as a stock or as a flow concept. In the constitution of the World Health Organization, health is defined as a state of complete physical, mental, and social well-being, and the word does not merely refer to absence of disease or infirmity.[3] The Directive Principles of the Indian Constitution state that, the State shall, in particular, direct its policy towards securing the health and strength of workers, men and women and that the tender age of children shall not be abused, and that the citizens are not forced by economic necessity to enter avocations unsuited to their age or strength. The State shall within the limits of its economic capacity and development, make effective provision for old age, sickness and disablement. The Constitution emphasizes that the State shall make provision for securing just and human conditions of work and for suitable maternity relief, and that it shall regard improvement of public health as amongst its primary duties. Health facilities are a basic human right of every citizen, and therefore, the expenditure on public and individual health represents an investment in the National economic infrastructure.[4] In the developing society, public expenditures are required for improving and preserving the environment and sanitation, and for elevating the nutritional status of the population to bring about a healthy manpower, that is needed in various sectors of the economy.[5]

---

[3] Consitution of World Health Organization.

It goes unsaid that, health is of vital importance both from the point of view of the Nation and individuals. And improved conditions will improve the efficiency of people and promote productivity in general. Health conditions exercise a profound influence on the productivity of labour in any sphere. In every country, huge amounts are being spent on various health programmes because of the outstanding and remarkable effects, which the investments will have on the economy as a whole. As a result of huge investments in health, several diseases have almost disappeared from the scene in some countries, and in many others their severity has come down, and thereby health status of the people all over the world is being consistently bettered. Also, the health of the people in any society depends upon the dynamic relationships between numbers and the space they occupy, age distribution, birth and death rates, nutritional status, and climatic conditions. Hence the need to invest in a wide variety of items to promote the health status of the people.

1.3 Impact of Investments in Health

The three crucial obstacles to the development of a society are ignorance, ill-health, and paucity of resources. History is full of examples of air, water, soil, and atmospheric pollution, which adversely affect the health status of the people, and thereby impairing the quantity and quality of production, which in turn affects the growth of the economy. Even industrialization and urbanization have their own evil effects on the health status of the people, directly and indirectly. And it seems inevitable that man will have to co-exist with all the available disadvantages in his environment.[6] Unplanned and unregulated urbanization will result in several kinds of congestion, poor community services and the absence of proper sanitation. The nature of occupations also exercises a profound influence on the health status of the people. People suffer from various occupational diseases due to professional hazards and the conditions in which they work. Besides, people also suffers from nutritional disorders. It has been estimated that more than two-thirds of the population are suffering from undernourishment with less than 2000 calorie diet per day.[7] People also suffer from malnutrition and various diseases arising out of parasitic, bacterial and viral infections.

---

[4] Towards a Health Society the Perspective Plan for Tamil Nadu, Report of the Taskforce on Health Family Planning, Nutrition and Sanitation, 1972—84, *State Planning Commission*, Kahilagam, Madras, August 1972.

[5] Ramakrishnan, N. R., All-India Institute of Hygiene and Public Health, Calcutta, on 'Health Economics in the *Journal of Public Health*, January 1967, by Mukhta Sen, pp. 25-26.

[6] "Environmental Health", *W.H.O. Chronicle*, November 1977, p. 497.

Eradication and prevention of these diseases costs more, and huge expenditures may need to be incurred to save people. And on the other hand, if proper attention is not paid to improve the health status of the people in any country, it will result in low production and wastage of young human lives : the first more economic than social, and the second more social than economic. In addition, communicable diseases pose a threat to the greater part of the world. In the developing countries especially, large proportion of children are victims of the communicable diseases and nutritional deficiency diseases. In advanced countries, the chronic and degenerative diseases have been on the increase.

Population growth coupled with accelerated and often unplanned urbanization brings along with it, congestion, over-crowding, unsanitary living conditions and environmental pollution, resulting from industrialisation and the upsurge of several occupational diseases resulting in physical and mental illness. Whether it be an advanced country or a developing nation, population—its size and its density, average expectation of life, regional distribution of population, composition, birth rates, and death rates, exert significant influence on the pattern of diseases and the character of health problems. In this context, accidents are worth mentioning which also influence the health status of the people. Proper precautions must be taken to avoid accidents which may be due to shortcomings in the form of pre-occupation in human beings, heavy traffic or industrial hazards.

Proper care must be taken to see that the measures introduced to enhance the health status of the people reach all groups, especially the low income ones. Experts have stressed the discrepancy between the need to provide the best possible personal health care to rapidly growing populations, and the drastic increase in cost which is beyond the reach of many individuals in many countries. In their zeal to provide such health care with the available limited resources, many countries have used social security schemes for financing personal health services and the absence of proper co-ordination between the social security system and national health programmes and policies, which is an obstacle to realising optimal results.[8]

---

[7] Presidential address of K. N. Rao, *Indian Journal of Public Health Quarterly*, (January, 1967), p. 6.

Coverage of population with personal health services may be regarded as having two dimensions i.e., the proportion of persons protected and the range of services provided. In both dimensions, the world-wide trend over the last few decades, is to extend the coverage by means of various programmes, policies, and schemes. Thus, however, there is a great necessity to invest in various items that promote the health status of the people. But at the same time, natural resources, however large, are always limited looked at from the point of their opportunity cost, and every government is faced with the problem of allocation of material, monetary, and human resources as between various items within the health sector itself. For example, problems arise as to how much should go to hospitals, how much to preventive measures, highly expensive forms of treatment like transplants, cardiac, kidney and other vital aspects of human system, as well as population control programmes, health education, communicable diseases and so on.

The level of a country's spending on health is determined by a variety of factors. Moreover, it is well established that the proportion of the natural resources devoted to health is everywhere on the increase. In general, expenditure on health absorbs a further 1 per cent of each nation's resources every decade, and if this trend continues, health services will be taking 10 per cent or more of them by the end of century.[9] Rational allocation of resources, therefore, plays a crucial role in the planning of health investments.

Huge investments in the field of health are of great importance, as far as the maintenance of human capital is concerned and such investments may go a long way, in terms of reducing morbidity and mortality, increased productivity and production, enhancement in the health status of the people, and the creation of active and energetic workfolk. In the case of every disease, whether nutritional, communicable, occupational or infectious in nature, the cost of illness will be more than covered by the benefits both direct and indirect. Improved health status will also imply favourable age composition which indicates the fact that the number of those in the productive age group will be more. Presence of diseases will represent a social waste, which are directly and indirectly spelled out in terms of several hundred crores of rupees.

---

[8] In his opening remarks when the Joint I. L. O./W. H. O. Committee met at Geneva from 10th-16th November, 1970, Dr. Mehler, Assistant Director-General of W. H. O. has pointed out this *W. H. O. Technical Report*, Series No. 480, 1971.

[9] Statements of Director-General of W. H. O. *Op. Cit.*

1.4 Health Economics

Health economics has emerged in recent decades as a very important area of research, as the subject deals with the interaction between health and various economic variables. Health status of the people determines the average expectation of life, productive age bracket, production, productivity, earning capacity, employment, and well-being of the people. On the other hand, several economic variables like income, employment, purchasing power, and poverty, determine the health status of the people. There is indeed a vicious circle present in the developing countries like India which throws light on this interaction :

↑ Poverty ↓

Low Standard of Living — Low Nutritional Status
Low Health Status

↑ ↓

Low Income — High Morality and Morbidity Rates

↑ Low Capacity to Lear and Work ↓

This vicious circle needs to be broken at some point or the other. One approach may beto push up the health status of the people and thereby attack poverty, i.e., if the health status of the people is enhanced, it may have a profound influence on the capacity to learn and work, average expectation of life, productive age bracket, earning capacity, incomes, and thereby on the standard of living.

1.5 Health Capital

The economic resources devoted to health care represent in some part, an investment in health, and it may be said that the health outlays improve the labour product created by health care, and effect savings in health expenditures in the future, as a consequence of reduction in diseases and their impact on the society in general.

Just as the stock of physical capital may be measured in a number of ways, so also the stock of health capital in people may be measured in different ways. The human capital formation in health care for a population may be measured, for example at cost, i.e., the cost of environmental and curative health services embodies over their life spans in each of the age cohorts in the present labour force. Cost for the purpose may be set at the cost of acquisition of the health services i.e., the year they were acquired and they may be determined on a replacement cost basis or at constant prices prevailing in a base year. The capital stock of health services may also be measured as the present value of the added labour product acquired through health programmes i.e., the stock may be valued at the present value of the future earnings generated through health programmes. In some health programmes, the labour product added is contingent on the services received by a specific individual, and on his death or retirement the capital value of health services is lost. Accordingly, the future earnings to be valued for the present period are limited by less survival and retirement rates. The present value of labour product created by health care becomes a second measure of capital value. The costs in terms of health programme expenditures, and in turn, in terms of resources devoted to health care may be greater, or less than the capitalized value of the added labour product created through improved health statutes.[10]

This measure of the capitalized expected income over the productive life span of the new labour product added through a health programme takes account of depreciation on the investment by the loss of labour product through retirement and death. There are some types of health programmes which yield returns into perpetuity. In the main, the asset created does not depreciate, and the value of the health services continues beyond the life span of the individuals for whom the services initially are provided. For instance, complete eradication of malaria or typhoid means that individuals of subsequent generations are saved from this disease. In cases where there is a return into perpetuity, in effect, the labour product added through health programme may be capitalized without allowance for depreciation i.e., for retirements from the labour force and death.[11]

---

[10] *See* Selma J. Mushkin, "Health as Investment", *Journal of Political Economy*, Vol. 70, 1962, pp. 129-57.

.These measures of capital formation through health programmes suggest, that the central problem in assessing yields and investment in health is the measurement of labour product added through health care. The resource gained as a result of prevention or cure of sickness is human labour. In order to value the gains in money terms, it is necessary to estimate the output added. In this context two questions arise : one relates to the future, and the other to the past. If there were no sickness, how much would those persons who are not sick have produced ? How much has been added to national income by health care : by the prevention and therapy measures now in use for specific diseases.[12]

The effect of sickness upon the amount of human labour available for productive purpose can be summarized under three categories (1) Death (loss of workers) (2) disability (loss of working time) and (3) debility (loss of productive capacity while at work. There are mainly two stages in calculating the output added i.e., (1) estimating the gain in productive work time and assigning a money value to the output that this added work time represents. The resulting figure represents the value of the gain in output attributable to reduction in deaths, disability to eradication of a specific disease or improvement in health status.

Two concepts of a system of measurement of human assets created through health programmes may be identified in the work that has been done. The first, in the measurement of the costs of rearing a child or of developing a productive labour force, an investment that is lost if premature death occurs. The second is a capital stock measure of the present value of future work that may be gained through eradication or control of the disease.

1.6 Health Care and Planning

That the promotion of sound health has to be accepted as a Universal social goal, was articulated in the resolution adopted by the thirteenth

---

[11] *Ibid*

[12] *Ibid.*

World Health Assembly, 1977. According to the resolution, the attainment by all citizens of the world by the year 2000 of a level of health that will permit them to lead economically and socially productive life 'should be the main social target of all Nations in the coming decade.' The International Conference in Alma Ata in 1978, while reiterating the question of health for all, formulated the primary health care approach to provide (a) promotive, (b) preventive, (c) curative and (d) rehabilitative services and involving all health related sectors such as agriculture animal husbandry, food industry education, housing, water supply, and sanitation, etc. India is a signatory to the Alma Ata Declaration (1978), whereby it is committed to achieving "Health for All by 2000 AD". For developing the country's vast human resources and for the acceleration and speeding up the total socio-economic development, and attaining an improved quality of life, and in so doing, health care has been accepted as one of the main instruments of action. The Seventh Plan enunciated that in the overall health development programme, emphasis will be laid on preventive and promotive aspects, through an effective, efficient health services, sufficiently comprehensive in nature, easily and widely available, freely accessible and generally affordable by the people. Towards this objective, the major thrust was to be in the following areas according to the Plan.

(i) The minimum needs programme would continue to be the sheet-anchor for the promotion of the primary health measures, with greater emphasis on improvement in the quality of services rendered and on their out reach. These will be backed up by adequately strengthened infrastructural facilities and establishment of additional units where they are not available.

(ii) Health programmes suffer considerably because of poor inter-sectoral co-ordination and co-operation. Serious efforts for effective co-ordination and coupling of health and health-related services and activities such as nutrition, protected water supply and sanitation, housing, educational information and communication and social welfare, will be made essential aspects of the package for achieving the goal of health for all by 2000 AD.

(iii) Community participation and people's involvement in programme being of critical importance, programmes involving active participation of voluntary organisations and the mounting of a massive health education movement would be accorded priority.

(iv) Qualitative improvements are required in health and family planning services, and training programmes need to be made more need-based and community oriented and, since management and supervision are vulnerable areas, and management information systems need to be developed. Adequate provision of essential drugs, vaccines, etc., need special attention for ensuring production and supply, pricing and distribution and universal accessibility and availability.

(v) Urban Health Services, school health services and mental and dental health services also need special efforts to ensure comprehensive coverage.

(vi) For the control and eradication of communicable diseases, programme implementation at all levels needs strengthening, with strict adherence to the sharing of the costs of the programme by State Governments. The National Goitre Control Programme requires to be implemented more vigorously.

(vii) Cancer, heart diseases, hypertension, diabetes, have emerged as major health problems in the area of non-communicable diseases. There is need to initiate appropriate action for their control and containment. Several of these diseases are amenable to control through primary and secondary checks and preventive measures. Development of specialities and super-specialities require to be standardised with proper attention to regional distribution.

(viii) The training and education of doctors and para-medical personnel requires a through overhaul, and the development of skills in the profession has to be related to the health problems of the people. Medical training has to be need-based, problem-centred and community-oriented. Medical education is a life-long process and continuing education in the field is essential. Health management and supervision is an area that needs considerable strengthening by a proper selection, training, placement, promotion and placement policy. Health management and experience for all categories of health and health-related managerial jobs will have to be strengthened.

(ix) Medical research of special relevance to the common health problems of the people, would be pursued. Evaluation of technologies will be given greater emphasis and priority. Modern biology and biotechnology will receive special attention in order to find more effective and acceptable tools to fight several of the endemic diseases. Research efforts in the area of immunological approaches to fertility control, immunodiagnostics, operational research, and effective utilization of electronics and computers in the health programmes will be pursued. There is an urgent need for evolving an effective and efficient management information system (MIS) for proper planning, implementation and evaluation of health services.

(x) The Indian systems of medicine lend themselves to better standardisation, integration and wider application, particularly in the national health programme. Teaching, training and research and service activities in the development of the Indian systems of medicine would need to be pursued more vigorously, and extension planning in this sector has to be substantiated.

1.7 Health Care in Andhra Pradesh

The above discussion is intended to throw light on the importance of Health both from the point of view of individuals and the nation, so as to provide a basis for the study of the health Economics in Andhra Pradesh which has a population of 54 million, and the fifth largest State in the country, accounting for 7.8 percent of the country's population. U. P., Bihar, Maharashtra and West Bengal are the other States which have a larger population than Andhra Pradesh.

During the decade 1971—81, the growth of population of Andhra Pradesh was 22.76 percent against the All-India average of 24.75 percent. It is, however, a matter of concern that though the birth rate in Andhra Pradesh is lower, the death rate has been somewhat higher than the All-India average. In the medical and health sector, the State is considered backward in terms of national averages and in comparison with other States. A huge step-up is therefore contemplated in the outlay of the Seventh Plan. The Plan emphasizes several approaches for strengthening the local programmes, which are as follows : In the field of modern medicine, it is proposed to ensure that all the taluk hospitals are equipped with 30 bed facilities. This would imply establishment of 47 taluk hospitals as at present there are no such hospitals, apart from upgrading a number of other similar hospitals to bring them up to the standard of 30 beds. In taluk hospitals as well as in district headquarters hospitals, appropriate investments will be provided to fill gaps that exist in terms of equipment, medical officers and other facilities. The district headquarters hospitals will also be upgraded in terms of specialities also, and they will be ensured that ENT and anaesthesia are added to every district headquarters hospital, so that each hospital is fully equipped with all the specialities. Establishment of dispensaries in 93 locations so that all the villages are served with medical facilities within a radius of 20 km., is also contemplated. All teaching hospitals require rationalization of staff, equipment and specializations so that facilities at optimum level are available in all the centres. Norms will be evolved accordingly and schemes implemented. As a matter of policy, the Government decided to establish super specialities in all the teaching hospitals for which institutional finances are also sought to be attracted on the assumption that large-scale finances from outside agencies would be available for which approximate provision is indicated. Keeping in mind the mounting requirements of specialist treatment, and the need to utilize the resources of the State as far as possible in the all areas, it is proposed to encourage private hospitals. Institutional mechanism will have to be devised to provide facilities for the purpose of attracting finances from non-resident Indians. In the field of Indian medicine, there are three main disciplines, and in order to cater to the needs of the tribal and rural folks, who constitute 76 percent of the population, hospitals and dispensaries under all the three disciplines are also to be established. To fulfil the requirements of the central council of Indian Medicine and Homeopathy the need to provide for expansions and additional departments is also realised. Regional offices and district level organizations in the case of Indian Medicine have been planned to be set up so as to strengthen the native disciplines which are now acting as an important substitute for modern systems of medicine in respect of the poor and the rural based people.

CHAPTER — II

INDICATORS OF HEALTH STATUS—MORTALITY AND MORBIDITY TRENDS

2.1 Introduction

In India, Human resource development has been a priority matter right from the beginning, although a new twist has been given with the formation of the new ministry for Human Resource Development. Health and Education are the two important components of human resource development. It has been widely realised that, the vicious circle of poverty, malnutrition and sickness can be broken by an increase in the investments on health and education. Health therefore, emerges as an important source of physical and mental development and human productivity. The prevailing high rates of mortality and morbidity represent an input loss not only at household level but also at the national level as they indicate an enormous amount of wastage of human resources. In this context, the statement of Simon Kuzents[1] is worth mentioning that the decline in mortality, has eliminated the enormous waste involved in rearing a large number of infants only to have them die before they could contribute to society's product and welfare, and it has also realised a large proportion of the potential female labour force to gainful occupations. And that the efforts at achieving the decline in the rates of morbidity, i.e., of the incidence of disease with its temporarily or permanently disabling effects on the productivity of population have to be continued.

A large number of fertility studies have emphatically concluded that mortality, especially infant mortality is the most decisive factor in reducing birth rate. The Government of India has launched a radical family planning programme from 1-9-1986 and aiming at reducing the net reproductivity rate (N.R.R.) equal to I by 1989, ie., within three years. In the light of these factors, the study of mortality and morbidity assumes greater significance.

---

[1] Kuznets, S. *Modern Economic Growth-Rate, Structure and Spread*, Oxford & I.B.H. Publishing Co. New Delhi, (1966), p. 58.

2.2 Mortality Trends

Mortality rate, especially that of infant mortality, has been considered as one of the most important indicators of the level of socio-economic and cultural development of any society. The reason is that socio-economic and cultural factors are the most important determinants of mortality. Table 2.1 presents the trends in mortality rate and infant mortality rate in India since the beginning of the present century.

In India, the death rate started declining from the year 1921, but the rate of its decline has not been as rapid as it was in some other developing countries. The overall decline in the crude death rate of about 47 per thousand population in 1911-21 to about 12 per thousand in 1982-84 is quite significant.

In fact, mortality rate has unfortunately remained high, despite the Government's determined effort to reduce it. The infant mortality =rate has declined from 215 per thousand births in 1901-11 to 108 per thousand births in 1981-83. Infant mortality, being the crucial determinant of fertility, there is an urgent need to find out ways and means to accelerate the rate of decline in the infant mortality rate in India.

2.3 Mortality Research in India

Mortality studies carried out in India were mostly dependent on the data generated through Census, Sample Registration Scheme, hospital based data, National Sample Surveys, etc., and very few were exclusively on mortality. Though the studies are valuable in many respects, they have certain serious limitations. According to Desai, "there have been several official publications based on data by the vital registration system, but these do not present any clear picture, and in fact, the blanket category of 'other' and the general category of 'fever' account for disproportionally high ratio of registered deaths, and it is hazardous to base any conclusion on the data''.[2] However, a few major studies have been carried out in different parts of India, generating primary data on mortality. In presenting the reviews of these studies, studies based on secondary data are presented first and later, studies based on primary data are represented.

TABLE : 2.1

RATES OF MORTALITY IN INDIA

Period	Crude Death Rate	Infant Mortality Rate
1901-11	42.6	215[3]
1911-21	47.2	178
1921-31	36.3	228
1931-41	31.2	207
1941-51	27.4	192
1951-61	22.8	140
1961-71	18.9	114
1971-81	14.4[1]	126[1]
1981-83	12.1[2]	108[2]
1982-84	12.1[2]	N.A.

Sources : Padmanabha, P., "Mortality in India—A Note on Trends and Implication" *Economic and Political Weekly*, Aug. 7,1982.

1. Samuel, H. Preston and P. N. Mari Bhat—"New Evidence on Fertility and Mortality Trends in India" *Population and Development Review*, Vol. 10, No. 3, 1984.

2. Family Welfare Programme in India, Year Book, 1984-85.

3. S. Chandrasekhar, *Op.cit.*, p. 101.

Chandrasekhar, S[3] made a pioneering study on mortality, specifically infant mortality, using the secondary data. The study covered most dimensions of mortality study besides comparing the findings, cross culturally and internationally. One major achievement of this work was the inter-relationship established between a wide spectrum of socio-cultural, health and nutritional variables and mortality.

---

[2] Desai, P.B., "Social Science Research on Population and Development in Middle South Asia", Appendix-2, *International Review Group of Social Science Research on Population and Development*, Mexico.

[3] Chandrasekhar, S., *Infant Mortality, Population Growth, and Family Planning in India*, George Allen and Unwin (1972).

Explaining the most important causes of infant mortality in India, Chandrasekhar writes, "the basic causes of the excess infant mortality in India are the poor nutritional status of the infants and their over exposure to large loses of pathogenic micro-organisms and the community's excessive fertility. These three basic causes interact, supplement, and reinforce each other. Nutritional privation and high infant and childhood mortality leads to excessive fertility which results, in view of limited family resources, in high infant mortality."

"This complex of under-nutrition and over-infection, combined with high fertility and high infant mortality has been both a material and non-material based. The material component arises out of Indian shortage of resources, capital, and technological know-how. The non-material component, which is perhaps more important, is the product of India's cultural patterns of behaviour, human relationship, motivations, and values."[4]

Adelman, Irma[5] has conducted an empirical study based on data for 34 countries (including India) taking age-specific mortality rate as the dependent variable and the following independent variables :

(*a*) per capita income.

(*b*) the percentage rate of growth of per capita real income.

(*c*) the percentage of the labour force employed outside agriculture.

(*d*) health indicator (the number of physicians per 10,000 inhabitants).

It is pointed out that, *ceteris paribus*, there exists a negative long-run association between death rates and economic conditions (per capita income). Mortality is negatively associated with differentials in medical care. Both these variables are statistically significant.

---

[4] *Ibid.*, p. 213.

[5] Adelman Irma, "*An Econometric Analysis of Population Growth*", *American Economic Review*, June, 1963, No.3.

Kohli, K.L.[6] studied the mortality levels and patterns for the period 1951—61 in the States of the Indian Union. The study focused on (*a*) measures of level of mortality and changes therein, (*b*) inter-state variations in over-all mortality level and in different phases of life (*c*) variation of mortality with age and sex (*d*) variation in the mortality pattern of states and comparison of the observed state patterns with those of United Nations Model Life Tables, and (5) factors in mortality variation in India. The study concluded that in spite of revolutionary control of mortality from major communicable diseases such as malaria, tuberculosis, plague, smallpox and cholera, the current level of India's death rate (1951-61) is still high, when compared not only with the western countries but also with many Asian countries. The study observed that the high level of death rate in India was mainly due to poor environmental hygiene, inadequate nutrition, insufficient preventive and curative health services and low standard of housing. Added to these, illiteracy, unemployment and poverty are also directly related to the mortality patterns. Generally, mortality rates are higher in the Northern States, when compared to the Southern States. Also the sex differentials in mortality were found to be maximum in the Northern States followed by the Southern State.

Padmanabha, P.[7] has made a detailed study of mortality trends in India, using almost all the existing secondary data. He observed that in the age-group 0-4, the rural death rate is almost twice that of the urban death rate. Nearly 47% of the total deaths are attributable to deaths in the age group 0-4 years. The extremely high proportion of deaths of infants within one month of birth calls for attention. Nearly 18 per cent of all deaths are of children below one month. Again of all deaths, nearly 30 per cent are attributable to deaths in age group below one year. In the rural areas, almost 75 per cent of births are attended only by untrained medical practitioners and others, as against about 38 per cent in the urban areas. The study also brings out that the mortality among female infants is more than that of the male infants, especially in the rural areas. This results bring out the need for further probe into the problem whether it is due to any deliberate preferential treatment of male children at the cost of

---

6. Kohli, K.L., *Mortality in India—A Statewise Study*. Sterling Publishers (Pvt.) Ltd., 1977.

7. Padmanabha, P., "Mortality in India—A Note on Trends and Implications", *Economic and Political Weekly*, (August 7, 1982).

female children. The study concluded that the infant mortality in India is associated with literacy, hygiene, age at marriage, infrastructural facilities like good drinking water, and lighting etc.

Ruzia, L.T.[8] traced out the morality transition in India during 1960's and 1970's. The study observed, "During the past thirty years, levels of mortality and, by inference, the health conditions of the Indian population, have been far from satisfactory, both by modern standards and by comparison with many other less developed countries. Moreover, available evidence suggests that there persist wide differences in mortality among various geographical parts of India and, no less importantly, among various social strata of India Society."[9] The author attempted to link the mortality situation with what has been happening in nutrition, hygiene, sanitation, water supply, medical care and other aspects of conditions of life in India. Mortality, apart from its obious demographic significance, has been an important, and in most instances, the only available index of health conditions. The health care delivery system in India, especially in rural areas, the author observed, is still very unsatisfactory. The author suggests that under the existing scheme, the rural population is supported to be served by sub-centres (each staffed by an Auxiliary Nurse-Midwife). The access of the rural population to health care can be approximated by the number of sub-centres per Primary Health Centre (PHC). The study also suggested that additional resources will have to be directed towards the development of supportive programmes : in sanitation, water supply, rural electrification, education and programmes in health and nutrition education.

Bhattacharjee's[10] study observed that in India, the females suffer from relatively bad mortality conditions, as compared to males, though the level of mortality for both sexes has declined to an extent. The paper attempted to study the sex differentials in mortality and available medical facilities in India. The relevant data for this purpose have been utilised from Demographic Year Book. (SRS Bulletin, Pocket Book of Health Statistics in India 1977).

---

8. Ruzia, L.T., "Mortality in India: Past Trends and Further Prospects" in Tim Dyson and Nigel Crook (Eds.) *India's Demography—Essays on the Contemporary Population*, South Asian Publisher's Private Ltd. (New Delhi).

9. *Ibid.*, p. 13.

10. Bhattacharjee, P.J., "Sex Differentials in Mortality and Available Medical Facilities in India", *Artha Vijnana*, 23 (2), 1981.

It is observed from the table giving physician-bed population ratio and Government expenditure on health with CDR for some of the countries that, the Government expenditure on health in developed countries is quite high as compared to India. Similar is the case with physician or bed-population ratios. The bed-population ratio for India is far from satisfactory and other medical facilities like ante-natal and post-natal care of the mother as well as the care of the children, are virtually absent even in the villages where PHCs have been functioning for a long time.

The urban areas and metropolitan cities where medical facilities being as good as in many developed countries, seem to have a lower crude death rate, and female death rates are lower compared to males for Bombay, Delhi, Bangalore and Pune. There are some states where the female mortality rate is lower as compared to male. Eight states in rural areas and ten in urban areas have shown a lower mortality. Only four states have shown lower female mortality both in urban and rural areas. These are Andhra Pradesh, Kerala, Karnataka and Maharashtra. It is also observed that female mortality rates start declining after the period of reproduction. In the age-group 50 and above, the male mortality rate is higher. In the age-group (5-14), Karnataka and Punjab recorded lower female mortality. In the age-group 15-49, all the states have shown a high female mortality rate, except Kerala, Andhra Pradesh, Madhya Pradesh and Tamil Nadu. The sex differentials in mortality observed in different states, with the exception of Kerala, where the female mortality is much lower than males, are not very prominent. In Uttar Pradesh female mortality is found much above the level of male mortality and the medical facilities are relatively poor.

Preston, S.H. and Mari Bhat, P.N.[11] have estimated Birth rates and Death rates for all-India, as well as for different states, using the 1981 census data on age-distributions. Estimates of child mortality derived from children ever born and children surviving data from three sources, viz. NSS data (1965-66), SRS Surveys (1972 and 1979) were also presented. The study aims at evaluating the reliability of the existing data on births and deaths. The study estimated that the probability of dying before age 4 (Q_2) declined from 0.225 in 1961 to 0.154 in 1968 and further to 0.125 in 1975.

---

[11] Preston, S.H. and Mari Bhat, P.N., "New Evidence on Fertility and Mortality Trends in India", *Population and Development Review*, 10, No.3 (September, 1984).

In 1943, the All-India Institute of Public Health and Hygiene in Calcutta conducted a general health survey of Singhur[12]—a nearby rural area involving some 300 families and 307 live births. The survey results show that the infant mortality rate as 137 per thousand live births. The survey pointed out, "The sex specific infant mortality being 196 and 85 for males and females respectively, the former are again at a considerable disadvantage. The special reasons for higher rates amongst the former may also help to indicate lines along which endeavours could be made to reduce waste in early life. From the analysis of the causes of death so far carried out, it would appear that a multiplicity of causes are in operation but there are some indications of difficult labour as being one of the possible causes of infant mortality amongst the males,"

A demographic survey, popularly known as the "Mysore Population Survey"[13], conducted under the joint auspices of the Government of India and the United Nations, yielded an infant mortality rate of 168.1 per thousand live births for rural and 110.9 for towns. The survey also revealed that infant mortality rates decreased with a rise in economic status. This, in the sense of a real increase in income, was reflected in better housing and in better domestic amenities (an elementary index adopted was the kind of lighting used, electricity, kerosene, etc.) The infant mortality rate for families in poor class housing in urban areas was 100 per 1000 live births, but the rate dropped to 50 when housing conditions improved. In the rural areas the agricultural labour families had an infant mortality rate of 159 per 1000 live births, while the owner-cultivator families with better incomes had a rate of only 95.

Dandekar, V.M. and Dandekar Kumudini have conducted a fertility and mortality survey in Poona district[14] in 1952. The survey is conducted among 1180 families in Poona city and 1006 families in other towns and villages. The authors have constructed a life-table for Poona City, and pointed out that the survey data shown an under-reporting of deaths, especially child deaths. "As against a total of 48 deaths to be expected among fathers and sons, only 19 were reported. Similarly, while a total of 53 deaths were expected among mothers, wives and daughters only 22 were reported."[15]

---

[12] All India Institute of Public Health and Hygiene (Calcutta) "*Report on the Singhur Health Survey*" (1945).

[13] *United Nations*, "The Mysore Population Study" (New York, 1961).

[14] Dandekar, V.M. and Kumudini Dandekar, *Survey of Fertility and Mortality in Poona District*, Gokhale Institute of Politics and Economics (Publication No.27) (1953).

Gordon, J.E., and Wyon, J.B.[16] have conducted a field study of eleven villages near Khanna in Ludhiana district in Punjab. The study was conducted with the aid of specially trained field staff for four years during 1956-59. A resident woman village worker visited once a month all families where the wife was of child-bearing age 15-45, and the male worker interviewed husbands. Through long residence, the village workers had become a part of the community, a fact which greatly favoured the collection of accurate information. A staff physician visited each village once a week, and thus a good proportion of serious illnesses was identified, and investigated every reported death. Four to eight men and women of the village, depending on its size, were appointed informants, who voluntarily assumed responsibility for reporting vital events for a specified group of 25 to 30 neighbourhood families. They reported to the village worker weekly once and additionally as events occurred. The data collected in this study indicate that infant mortality rates obtained are 163.1, 142.2, 167.7, 172.9 and 161.7 for the years 1956-59 respectively.

The Khanna study has found that the crude death rate of females exceeded that of males by a statistically significant difference of 26 per cent. In infancy, there were 170 deaths per 1000 male infants against 205.4 among females.

Sinha, U.P.[17] has conducted a mortality survey among scheduled tribe families. The results of the survey are quite interesting. Among the tribals the sex composition is relatively balanced. Estimates show that the death rate among tribal females is lower than (among) males! This leads to the conclusion that the tribal society though facing many odds, females are well looked after and as a result, they enjoyed Nature's law of longer longevity than males.

---

[15] *Ibid.*, p.114.

[16] Wyon, J.B. and Gordon, J.E. Khanna Study: *Population Problems in Rural Punjab*, Cambridge, Massachusetts, Harvard University Press, 1971.

[17] Sinha, U.P., "Sex Composition and Differential Mortality Among Tribals of India" *Indian Journal of Social Work*, 44 (4), 1984 (pp. 387-392).

2.4 Morbidity—The Concept and Measurement

The World Health Organisation (WHO) is of the opinion that health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity. Generally, a person is said to be in morbidity state if he shows any of the following signs, known as classification of morbidity.

(i) diseased and deformed.

(ii) deficiencies, deformities and diseases, either from birth or developed in the life-process, which do not make a man incapable and unable viz., permanent and chronic diseases, diseases in the eyes, or some specific categories of deformities.

(iii) diseases of primary stages.

(iv) the persons of the diseased mentality, who either feel themselves as ill and hurted.

The study of morbidity is important for the following reasons:

1. It helps assess the health status of the people.
2. Morbidity affects national production.
3. Helps plan for health services.
4. Helps plan for the research and production of pharmaceuticals.

There are two important methods of conducting morbidity studies. They are (1) Survey Method and (2) Records Method. The first method is based on primary data collected through a sample survey and it all depends on the objectives of the survey. The records method is based on the statistical records maintained by hospitals, police, death registration records, insurance, companies, industries, etc.,

Morbidity rate is generally measured as crude

$$\text{prevalence rate} = \frac{\begin{array}{c}\text{Total number of diseased persons}\\ \text{in a specified period}\end{array}}{\text{Average population of the period}} \times 1000$$

If we want disease specific prevalence rate, we shall change the numerator of the above formula as "Total number of persons affected by the particular disease."

Case Fatality Rate (CFR) is measured as

$$\text{CFR} = \frac{\text{Number of deaths due to certain disease}}{\text{Number of persons caught by that disease}} \times 1000$$

2.5 Trends in Morbidity

TABLE 2.2

PERCENTAGE OF TOTAL NUMBER OF DEATHS BY DIFFERENT CAUSES (1921-73)

Cause	1921-31	1931-41	1941-51	1960	1962	1964	1973
Malaria	59.1	58.4	58.1	58.1	38.4	37.7	32.4
Cholera	3.6	2.4	1.1	1.8	0.3	0.8	0.3
Smallpox	1.2	1.1	4.0	0.9	1.0	0.9	0.6
Plague	2.6	-	9.3	-	-	-	-
Dysentery & Diarrohea	3.6	4.2	4.4	0.5	5.1	4.8	4.4
Respiratory Diseases	NA	8.3	8.2	4.1	8.8	8.9	9.4
Others	NA	25.8	23.9	34.6	46.4	46.9	52.9
All causes	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source : S. N. Agarwala—*India Population Problem* (Tata Mcgraw Hill).

TABLE 2.3

PERCENTAGE DISTRIBUTION OF ALL INFANT DEATHS BY CAUSES, ALL INDIA (RURAL) 1979-1982

Major cause Crops	1979	1980	1981	1982
Digestive disorders	3.3	2.2	3.4	2.3
Coughs (disorders of respirator system)	11.9	11.7	15.0	14.8

Fevers	4.8	2.8	4.5	5.0
Disease peculiar to infancy	69.1	73.1	66.3	67.3
Others	10.9	10.2	10.8	10.6
Total	100.0	100.0	100.0	100.0
Total No. of infant deaths covered in the Survey	3,296	3,296	3,186	2,803

Source: Year Book 1984-85 of the Family Welfare Programme in India.

Data on morbidity rate in India are generally incomplete and inadequate. Table II presents the trends in the deaths due to the seven major diseases, from 1921-31 to 1973. Highest proportion of the deaths still remain to be the highest due to malaria. The proportion of the category of 'others' has been increasing from 25.8 per cent in 1931-41 to 52.9 per cent in 1973.

Table 2.3 presents the percentage distribution of all infant deaths by causes from 1979 to 1982. The highest percentage of deaths is due to diseases peculiar to infancy. The second major determinant is due to the diseases of respirator system.

2.6 Morbidity Surveys

Research on morbidity is almost negligible when compared to the other areas of demographic research. One of the important difficulties of the morbidity research is that even the doctors often find it difficult to identify what is the cause of death. For the lay police, patels or chowkidars, it is generally impossible. Second difficulty in morbidity research is the classified list of diseases. There is a huge list provided by the WHO 'the international classification'. There is another abbreviated Yves Birand Classification, and still more abbreviated Registrar General's list. These lists ultimately boils down to eight types of diseases. They are (1) Cholera, (2) Smallpox, (3) Plague, (4) Fevers, (5) Dysentery and Diarrhoea, (6) Respiratory diseases, (7) Injuries and (8) Other causes. The residuary category 'other causes' accounted every year for more than half the registered deaths. The 'fever' category also is recorded about one-fourth of the total diseases.

A pioneering health survey is conducted by S. C. Seal[18], Professor of Epidemiology of All India Institute of Hygiene and Public Health (AIIHPH), Calcutta. Morbidity data on Dungarpur Block of Rajasthan is presented below in Table 2.4 :

TABLE 2.4

MORBIDITY RATE PER 1,00,000 POPULATION DURING 12 MONTHS

Disease	*Illness rate per* 1,00,000 *Population*
Fevers, others	3478
Guinea Worm Infection	2932
Diarrhoea and Dysentry	1059
Other ill-define causes	511
Bronchitis	443
Typhoid & Paratyphoid Fevers	307
Skin and other diseases	273
Pneumonia	239
Cataract	239

The main findings of the study are :

(i) There is a high incidence of dysentery and diarrhoea among infants, toddlers and children of school going age.

(ii) The actual morbidity rate was highest among old persons above 55 years of age—193.3 per 1000 with an average duration of sickness of 9.0 days per head—but the loss of working efficiency due to morbidity in the working ages 15-55 is even more appalling ; for the duration of sickness per sick person was highest among persons of this working ages 15-55 is even more appalling ; for the duration of sickness per sick person was highest among persons of this working age,

---

[18] Seal, S.C., *Report on the Survey of Durgarpur Community Development Block*", AIIHPH, Calcutta (1956), p. 52.

the average loss being 63 days. The duration of sickness in pre-school and school age is not considerable either and provides an explanation in a large measure of the high rate of wastages and dropouts at school.

The Central Bureau of Health Intelligence of the Director General of Health Services of India having concentrated its efforts on a narrow core of epidemiology covering epidemics and infectious diseases, and during the end of the fifties, the causes of deaths were enquired. Later Registrar General of India began publishing the annual reports of Vital Statistics from 1958 onwards. Broad conclusions of these surveys are :

(i) It has been observed that the accepted notion that in communities with relatively poor health, sanitary condition and nutrition, infective and parasitic diseases are the most important killers, but even at they are brought under control, diseases of the respiratory system and of metabolism and nutrition assume greater significance.

(ii) One firm conclusion that may be arrived at is that mortality in India is still overwhelmingly a public health and preventive problem, which will have to be fought for a long time yet on its own ground rather than on a clinical or curative one.

Mahadeva, K.[19] and others have conducted a study with the aim to explain the differential trends in infant and early childhood mortality in terms of socio-economic, cultural, demographic, and health and nutrition factors. The study was carried out across the three major cultural groups, namely, the Muslims, the Harijans and caste Hindus belonging to Rayalaseema region of Andhra Pradesh. The period of the survey is 1979-80.

The Major findings of the study are :

(i) Major factors influencing infant mortality were found to be mostly maternal : prematurity, malnutrition, asphyxia neonatorum, delivery problems (the Muslims 31 per cent, the Harijans 28 per cent, the caste Hindus 25 percent).

(ii) The second major cause for infant mortality is the water-

---

[19] Mahadeva, K. et.al., *Infant and Child Mortality in India-Bio-Social Determinants*, Mittal Publications, Delhi (1985).

borne diseases (diarrhoea, dysentry, cholera, etc.) (Muslim 18 per cent, Harijans 19 per cent, caste Hindus 18 per cent).

(iii) Third major cause of death was air-borne diseases ranging from 11 to 17 per cent.

(iv) Other causes of death included fever, fits, stomach ailments, respiratory trouble, animal bites and so on.

(v) Another one fifth of the respondents do not know the causes of death and 4 to 9 percent attributed it to unscientific causes like wind, ghost, evil eye etc. Thus a quarter of the respondents did not know the causes, but knew only the wrong ones.

(vi) The most important common factor that influenced the infant and childhood mortality was birth order of the infants/children died. Per cent variation in infant/child mortality, explained by the birth order of the children (1-4) died is 32-89 per cent for Muslims, 31.16 for Harijans and 53.46 for caste Hindus. The variable, 'Number of living children' explained the percentage variation in infant mortality as 5.57 for Muslims, 13.42 for Harijans and 9.34 percent for caste Hindus. The other common factors were sex of the infant/child died, environment sanitation nutritional status, and duration of the breast feeding.

(vii) The single largest number of infant deaths occurred during the first week after delivery; it was 42 per cent, 40 per cent, and 39 per cent respectively among the Muslims, Harijans and caste Hindus.

2.7 Importance of the Study of Mortality and Morbidity

The Single largest determinant of reducing birth rate and in effecting demographic transition is the death rate. And unless death rate falls to a reasonably low level, the question of the fall in the birth rate may not be achieved. Even if it is achieved, it may not be desirable for the reason that the balance between birth and death rates is essential. The rates of mortality and morbidity are indicators of health status of the people. The present study throws light upon such aspects and analyses

---

20. Desai, P.B., *A Survey of Research in Demography*, Popular Prakasan, Bombay, 1975.

the shifts in the health status of the people, so as to indicate guidelines to policy, particularly because the social scientists have not paid much attention on mortality and morbidity studies. According to an ICSSR Survey of Research in Demography[20] out of 4661 articles, books and monographs published in demography upto 1975, there are only 266 of them are on morbidity and mortality. In Andhra Pradesh, the number of studies on mortality and morbidity is almost negligible. This study assumes significance looked at from the point of the need to have an estimate of the trends in mortality and morbidity and thereby assess the health status of the people, so as to ascertain the gap between the supply of and demand for health services and thereby suggest some measures to fulfil the objective of "Health for all by 2000 AD", which might ultimately help evolve a population policy for the region.

CHAPTER — III

MORTALITY AND MORBIDITY TRENDS—AN EMPIRICAL ANALYSIS

3.1 Mortality

Table 3.1 throws light on the percentage distribution of population by age groups in Andhra Pradesh as per 1971 and 1981 Census. In the age group 0-4 the percentages are 13.83 (persons), 13.66 (Males) and 14.01 (females) in 1971 and the corresponding percéntages on 1981 are 12.15 (persons), 12.00 (males) 12.31 (females). The figures show a decline in the population in the age group 0-4 which is a very important trend in the sense that population growth has declined.

If we broadly divide the age groups into three i.e. 0-14, 15-59 and 60+, the percentage of distribution of population in Andhra Pradesh is as follows. It is 40-68 in 1971 and has declined to 38.55 in 1981, as far as the 0-14 age group is concerned. In the 15-59 age group the percentage of population is 53.07 in 1971 and has risen to 54.78 in 1981. There is no significant change in the third group and the percentage in 1971 is 6.35 and 6.67 in 1981. In the first two groups, though the change is not very high, it is a significant change in the sense that, the reduction in the percentage of people in the age group 0-14 by 1981 is an indicator for the reduction of births ; and the rise in the percentage in the age group 15-59 by 1981 shows an increase in the number of people in the productive age bracket.

As regards the rural urban differences the following facts are worth noting. In the age 0-4 age group the percentage of population in 1971 is 13.97 and it has declined to 12.27 in 1981. Correspondingly, in the urban areas in the 0-4 age group the percentage is 13.27 in 1971 (i.e. almost at same level as in rurál areas) and it has declined to 11.75 in 1981 which indicates that the fall is greater in urban areas. It may be due to an effective implemention of family planning programme in urban areas comparatively.

In the 0-14 age group the percentage of population is 40.72 in 1971, and it has fallen to 38.9 by 1981 in the rural areas of Andhra Pradesh. On the other hand, in the urban areas in the 0.14 age group the percentage is 39.48 in 1971 and it has gone down to 37.42. These figures are both lower compared to the corresponding figures for the rural areas. It shows that birth rate reduction is higher in urban areas. In the age group 15-59 in the rural areas of Andhra Pradesh, the percentage of population is 5255 in 1971 and it is 53.96 in 1981 and in the urban areas it is 55.59 in 1971 and it has risen to 57.43 in 1981. Figures show that, the increase in the number of people in the productive age bracket is higher in urban areas compared to rural areas, and it may be due to greater reduction of morbidity in urban areas due to the availability and use of health services.

Regarding '60 plus' age group, the percentage of population in rural areas is 6.73 in 1971, and it has risen to 7.14 by 1981; and the corresponding figures for the urban areas are 4.93 in 1971 and 5.14 in 1981. Figures show that greater longevity is associated with rural people.

3.2 SRS Vital Rates in Andhra Pradesh during 1976-85

Table 3.4 indicates estimated SRS birth rate, death rate, natural growth rate and infant mortality rate in Andhra Pradesh during 1976-85. Birth rate has declined from 33.7 in 1976 to 31.7 in 1981 to 29.3 in 1983. In rural areas birth rate decreased from 34.6 in 1976 to 32.7 in 1981 and to 292 in 1985. On the other hand, in urban areas, birth rated declined from 29.8 in 1976 to 27.5 in 1981, but from 1981 birth rate has risen to 29.6 in 1985.. Regarding birth rate in Andhra Pradesh during 1976-85 there has been a decline to the extent of 13.06. The decline in the birth rate pertaining to rural areas is 15.61 per cent, and that pertaining to urban areas is 0.67 (though the decline in urban areas is less, one should keep in mind the fact that rates are lower than that in rural areas). The death rates in Andhra Pradesh declined by 30.34 during the period 1976-83. The decline in the rural areas is of the order of 30.13, and 26.32 in urban areas. There has been no change in natural growth rate during this period

(1976-85) But the natural growth rate in rural areas has declined by 3.68 per cent. On the other hand, the natural growth rate has increased by 11.33 per cent in urban areas. Infant mortality rate in Andhra Pradesh decreased by 31.97 per cent. The IMR in rural areas has fallen by 29.13 per cent, while that in urban areas has fallen by 40.27. This may be attributed to comparatively better availability and utilization of health services in urban areas.

3.3 Expectation of Life

Table 3.5 throws light on projected values of expectation of life at birth in Andhra Pradesh during 1961-70 to 1996-2001. It shows that the expectation of life (males) has risen from 44.6 in 1961-70 to 56.10 by 1981-86 and it is expected to rise to 63.40 by 1996-2001. On the other hand, with regard to females, the expectation of life rose from 43.5 in 1961-70 to 59.98 in 1981-86, and is expected to rise to 65.93 by 1996-2001. The figures state that the expectation of life pertaining to females is slightly lower or equal to that of males upto 1980, but from 1981-86 onwards the expectation of life regarding females is higher.

3.4 Age Specific Death Rates in Andhra Pradesh during 1976-84 (both Rural and Urban)

The estimated age-specific death rates in Andhra Pradesh during 1976-84 show that, there has been a decline in death rates during the period 1976-84. There has been significant reduction in 0-4 and 5-9 age groups, i.e., 42.4 per cent 40.0 per cent which indicates reduction in infant mortality and child mortality which in turn indicates improvement in health status.

As regards rural urban differences, it may be stated that there has been a decline in death rates pertaining to all age groups in rural areas. In fact there has been a rise in mortality in certain age groups in urban areas i.e., 10-14, 45-49 and '70 plus'. Death rate (all ages) reduction in Andhra Pradesh during 1976-84 is of the order of 24.0 and the rural death rate (all ages) is closer to it at 25.0, while the urban death rate (all ages) is only 9.5.

3.5 Morbidity

The morbidity statistics seem to be generally inadequate, and with the limited data that are available, an attempt was made to focus on the morbidity pattern in Andhra Pradesh. In a period of development, it is essential to consider the patterns of morbidity, because it has a crucial role in the welfare of the individuals. Whenever incidence of sickness is high, it turns out to be a severe hurdle coming in the way of the developmental activities, and the enhancement of the well-being of the individuals, as it results in high rates of absenteeism, disability, delibility, inefficiency, income loss, etc.

3.6 In-patients and Out-patients per 1000 Population During 1963, 1973 and 1983

The total number of inpatients treated in all Government Medical Institutions are 1600107 in 1963, 4494972 in 1973 and 7997977 in 1983. The percentage increase in in-patients during 1963-73 is 180.92, and it declined to 77.93 in 1973-83. If we look at in-patients per 1000 population, we get a similar trend. The in-patients per 1000 population was 42.68 in 1963, 98.76 in 1973 and 143.95 in 1983 i.e., the growth of in-patients is less during 1973-83.

The same trend is seen even with regard to out-patients. The total number of out-patients treated in all Government Medical Institutions was 1, 81, 11, 413 in 1963, 3, 70, 45, 535 in 1973 and 5, 47, 82, 432 in 1983. The percentage growth of out-patients during 1963-73 is 104.54 and it decreased to 47.87 in 1973-83. Number of out-patients per 1000 population was 483.13 in 1963, 813.27 in 1973, and 986.02 in 1983. These figures show that the growth in the number of out-patients during 1963-73 is more compared to 1973-83. Thus, facts indicate that there has been a reduction in morbidity during 1973-83 compared to the previous decade, which is an indication of improvement in the health status of the people, in general.

3.7 Percentage Distribution of in and out-patients Treated in all Government Medical Institutions in Andhra Pradesh in 1983

Tables 3.13 and 3.14 contain a detailed list of patients treated and deaths of in-patients in Governmental Medical Institutions in Andhra Pradesh in 1983. If we look at the percentage distribution of in- and out-patients among major cause groups, it generally indicates that the percentage of patients is higher in the infective and parasitic diseases group, followed by diseases of blood and related organs, diseases of respiratory system, and so on. Percentage of deaths is also high for the infective and parasitic diseases group, followed by the diseases of circulatory system and diseases of the respiratory system.

The incidence of malaria indicates that it has increased during 1970-76 and from 1977 onwards the incidence started a declining trend. The inter-district variations with regard to incidence of malaria during 1985 and 1986 are presented in the relevant table.

Table 3.13 shows that in respect of filaria, during 1982-86. The disease rate has increased from 1.8 in 1982 to 5.0 : the endemicity rate increased from 4.4 to 8.8, the infection rate declined from 1.4 to 1.0 and infectivity rate declined from 0.5 to 0.3.

As regards Tuberculosis, the total number of cases treated was 1,31,824 (old plus new) in 1982-83 and it was 1,42,250 in 1985-86 and 1,38,022 in 1986-87. The percentage of cases cured to the total has risen from 6.05 in 1982-83 to 6.46 in 1985-86 and to 7.67 in 1986-87.

There has been a decline in the incidence of cholera and gastro-enteritis during 1978—86. The percentage decline in the cholera cases is to the extent of 93.95; percentage decline in deaths due to cholera is 96.16; percentage decline in gastro-enteritis cases is 40.31, and decline in deaths relating to gastro-enteritis is 71.61 during 1978-1986. Tables 3.20 and 3.21 presents district-wise cases and deaths due to cholera and gastro-enteritis in Andhra Pradesh 1982-86.

As regards the incidence of encephalitis in various districts during 1982—86, the total number of cases was 436 in 1979 and 397 in 1980. The number of cases was high in 1981 i.e. 1273 and again the number decreased to 418 in 1982, 325 in 1983, but again it has risen to 606 in 1984, and came down to 187 in 1985. And the number is very high in 1986 i.e. 2048. The figures show that the incidence of the disease is very high. The percentage of deaths to total number of cases also had come down by the year 1986. In 1979, this percentage was at 19.49, it was 45.84 in 1980, 34.48 in 1981, 33.49 in 1982, 50.15 in 1983, 55.45 in 1984, 62.03 in 1985, and 31.25 in 1986. The figures indicate that the percentage of deaths is lower comparatively in the two years i.e., 1981 and 1986, when the total number of cases was very high. As regards leprosy the total number of cases recorded in 1985 was 481225 and the number of cases discharged was 79329 in 1985—96. The number of cases cured and discharged generally indicates the drive involved in official policy in tackling this important disease. The prevalence rate of leprosy per 1000 was 11.58 in 1985-86 which is higher than the national prevalence rate of 5.72.

TABLE 3.1

Percentage Distribution of Population by Age Groups in andhra Pradesh, 1971 and 1981 Census

Age Group		1971			1981	
(yours)	Persons	Males	Females	Persons	Males	Females
0- 4	13.83	13.66	14.01	12.15	12.00	12.31
5- 9	14.63	14.53	14.73	14.15	14.05	14.26
10-14	12.02	12.23	11.80	12.25	12.45	12.03
15-19	8.44	8.59	8.28	9.07	9.26	8.89
20-24	7.90	7.63	8.17	8.23	7.97	8.49
25-29	7.65	7.26	8.05	7.83	7.97	8.09
30-34	6.72	6.59	6.85	6.62	6.68	6.55
35-39	6.08	6.11	6.04	6.13	6.08	6.18
40-44	5.64	5.90	5.37	5.62	5.87	5.37
45-49	4.23	4.50	3.96	4.56	4.69	4.43
50-54	4.28	4.37	4.19	4.38	4.49	4.27
55-59	2.21	2.31	2.11	2.34	2.39	2.29
60-64	2.99	2.97	3.01	3.03	2.99	3.07
65-69	1.17	1.18	1.18	1.27	1.23	1.30
70	2.20	2.16	2.24	2.34	2.25	2.44
Age not stated	0.01	0.01	0.01	0.03	0.03	0.03
All Ages	100.00	100.00	100.00	100.00	100.00	100.00

***Source** : Health Statistics of Andhra Pradesh, Government of Andhra Pradesh, 1987.*

TABLE 3.2

Percentage Distribution of Population by Age Groups in Rural Areas of Andhra Pradesh 1971 and 1981 Census

	1971			1981		
Age Groups (Yours)	Persons	Males	Females	Persons	Males	Females
0- 4	13.97	13.79	14.14	12.27	12.16	12.39
5- 9	14.75	14.69	14.81	14.37	14.31	14.42
10-14	12.00	12.28	11.72	12.26	12.54	11.97
15-19	8.04	8.22	7.86	8.60	8.86	8.34
20-24	7.52	7.17	7.87	7.73	7.40	8.06
25-29	7.51	7.08	7.95	7.52	7.22	7.83
30-34	6.67	6.47	6.88	6.53	6.49	6.57
35-39	6.06	6.08	6.04	6.11	5.99	6.23
40-44	5.71	5.94	5.48	5.73	5.91	5.55
45.49	4.32	4.58	4.06	4.70	4.81	4.59
50-54	4.42	4.52	4.32	4.59	4.73	4.45
55-59	2.30	2.43	2.17	2.45	2.50	2.40
60-64	3.13	3.15	3.11	3.23	3.23	3.22
65-69	1.25	1.26	1.24	1.36	1.35	1.38
70	2.34	2.33	2.34	2.52	2.47	2.57
Age not stated		0.01	0.01	0.01	0.03 0.03	0.03
ALL AGES	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 3.3

Percentage Distribution of Population by Age Groups in Urban Areas of Andhra Pradesh 1971 and 1981 Census

Age Groups	1971			1981		
(Yours)	Persons	Males	Females	Persons	Males	Females
0- 4	13.27	13.09	13.46	11.75	11.48	12.03
5- 9	14.12	13.85	14.39	13.46	13.80	13.73
10-14	12.09	12.04	12.14	12.21	12.18	12.24
15-19	10.10	10.11	10.08	10.65	10.56	10.75
20-24	9.49	9.54	9.44	9.87	9.80	9.94
25-29	8.25	8.04	8.47	8.83	8.69	8.98
30-34	6.90	7.08	6.72	6.89	7.30	6.47
35-39	6.15	6.25	6.05	6.21	6.39	6.02
40-44	5.34	5.74	4.91	5.22	5.69	4.74
45-49	3.86	4.18	3.52	4.11	4.30	3.91
50-54	3.69	3.74	3.65	3.68	3.72	3.64
55-59	1.21	1.79	1.84	1.97	2.01	1.93
60-64	2.40	2.24	2.56	2.40	2.23	2.52
65-69	0.89	00.83	00.96	00.96	0.88	1.05
70	1.62	1.46	1.80	1.76	1.55	1.98
Age Not stated	0.02	0.02	0.01	0.02	0.01	0.03
All Ages	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 3.5

Projected Values of Expectation of Life at Birth in Andhra Pradesh 1961-70 to 1996-2001

Period	Males	Females
1961-70	44.60	43.50
1971-75	48.60	48.00
1976-80	51.50	51.00
1981-86	56.10	59.98
1986-91	59.10	62.23
1991-96	61.40	64.48
1996-2001	63.40	65.93

Note : Projected Values of expectation of life from 1981-2001 are based on Sample Registration Scheme—Report of the Expert Committee on Population projection 1981-2001.

TABLE 3.4

Estimated Birth Rate(B.R.), Death Rates(D.R.), Natural Growth Rate,(N.G.R.) and Infant Mortality Rate(I.M.R.) in Andhra Pradesh 1976—85*

Indicator	T/ R/ U	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985**
D.R.	T	33.7	32.3	33.6	32.1	31.0	31.7	30.8	30.8	31.2	29.3
	R	34.6	33.3	34.7	32.8	32.0	32.7	31.5	31.5	31.4	29.2
	U	29.8	27.7	28.6	29.4	26.9	27.5	28.4	28.4	30.6	29.6
D.R.	T	14.5	14.2	13.3	12.6	11.3	11.1	10.4	10.4	11.0	10.1
	R	15.6	15.6	14.3	13.6	12.4	12.2	11.6	11.2	11.7	10.9
	U	9.5	8.0	8.9	8.0	6.8	6.5	6.0	7.2	8.6	7.0
N.G.R.	T	19.2	18.1	20.3	19.5	19.7	20.6	20.4	20.4	20.2	19.2
	R	19.0	17.7	20.4	19.2	19.6	20.5	20.1	20.3	19.7	18.3
	U	20.3	19.7	19.7	21.4	20.1	21.0	21.4	21.2	22.0	22.6
I.M.R.	T	122	125	117	106	92	86	79	77.1	77.6	83.0
	R	127	136	127	114	103	93	86	82.7	80.7	90.0
	U	97	62	66	65	40	52	50	54.4	65.6	58.0

* Estimated under Sample Registration Scheme. T: Total, R: Rural, U: Urban.

** Provisional.

TABLE 3.6

Estimated Age-Specific Death Rates' in Andhra Pradesh 1976—84

Age-Group	1976	1977	1978	1979	1980	1981	1982	1983	1984	Percentage change in 1984 over 1976
0-4	48.8	44.8	44.2	39.2	31.7	30.4	26.7	28.2	28.1	-42.4
5-9	5.0	3.9	3.3	3.5	3.9	2.9	2.8	2.5	3.0	-40.0
10-14	1.8	2.4	1.9	1.4	1.6	1.3	1.3	1.9	1.8	- 0.0
15-19	3.1	2.7	2.4	2.3	2.9	2.2	2.4	2.0	2.7	- 12.9
20-24	3.7	3.5	2.9	3.2	3.4	2.9	2.9	2.9	2.5	- 45.9
25-29	3.5	3.8	2.8	4.3	3.3	4.2	2.8	3.6	3.1	- 11.4
30-34	5.3	3.3	4.6	4.3	4.1	3.8	3.2	3.4	3.9	- 26.4
35-39	4.8	5.9	4.9	5.2	4.1	3.6	4.2	5.2	4.5	- 6.3
40-44	6.8	7.7	7.7	6.6	6.1	5.5	6.0	4.5	5.7	- 16.2
45-49	11.3	12.5	8.9	9.2	8.2	9.9	8.9	7.9	8.4	-25.7
50-54	20.0	13.9	14.3	13.2	10.8	11.2	13.9	12.1	15.0	-25.0
55-59	22.3	25.8	20.4	21.5	21.1	20.4	18.1	15.2	17.4	-22.0
60-64	38.3	46.5	35.2	37.0	32.8	34.0	33.7	30.2	34.0	-11.2
65-69	64.5	58.5	50.5	46.1	58.2	52.4	46.4	46.6	48.1	-25.4
70+	109.0	118.7	98.7	96.3	89.9	195.6	104.1	95.1	106.8	- 2.0
All Ages	14.5	14.2	13.3	12.6	11.3	11.1	10.6	10.4	11.0	-24.0

TABLE 3.7

Estimated Age-Specific Death Rates' in Rural Areas of Andhra Pradesh 1976—84

Age-Group	1976	1977	1978	1979	1980	1981	1982	1983	1984	% Decline in1984 over 1976
0-4	53.2	50.2	48.8	42.8	35.6	33.6	30.3	31.3	29.9	-43.8
5-9	5.7	4.3	3.5	4.0	4.4	3.3	3.3	2.8	3.3	-42.1
10-14	2.1	2.6	1.9	1.6	1.7	1.5	1.5	2.1	1.9	- 9.5
15-19	3.3	2.9	2.6	2.4	3.1	2.3	2.8	2.2	2.9	-12.1
20-24	3.7	3.7	3.3	3.5	3.9	3.1	3.1	3.3	2.2	_40.5
25-29	3.3	4.2	2.9	5.0	3.9	4.8	3.1	4.1	3.3	_0.0
30-34	5.6	3.6	5.1	4.8	4.2	4.2	3.8	3.8	4.2	_25.0
35-39	4.9	6.4	5.5	5.6	4.7	4.0	5.0	5.4	4.8	_2.0
40-44	6.9	8.3	7.4	6.7	6.3	5.7	6.2	4.1	6.2	_10.1
45-49	11.9	13.2	8.9	9.4	8.7	10.9	9.4	8.5	8.3	_30.2
50-54	20.6	14.7	14.5	13.4	11.3	11.9	14.6	12.6	15.7	_23.8
55-59	22.0	26.3	18.7	21.3	22.1	21.7	18.0	13.6	16.8	_23.6
60-64	38.6	47.1	34.1	37.9	32.0	35.5	35.4	29.9	34.0	_11.9
65-69	67.1	57.8	52.8	48.2	61.2	53.5	46.9	48.3	48.2	_28.2
70+	113.4	124.5	96.2	100.2	91.1	111.4	107.7	96.6	108.6	_4.2
All Ages	15.6	15.6	14.3	13.6	12.4	12.2	11.8	11.2	11.7	_25.0

TABLE 3.8

Estimated 'Age-specific Death Rates' in Rural Areas of Andhra Pradesh 1976—84

Age-Group	1976	1977	1978	1979	1980	1981	1982	1983	1984	Percentage change in 1984 over 1976
0-4	27.3	18.6	22.6	23.0	13.9	16.4	14.3	17.0	21.6	_20.9
5-9	2.1	1.7	2.2	1.6	1.9	1.2	1.2	1.7	1.6	_19.0
10-14	0.8	1.6	1.6	0.7	1.1	0.7	0.5	1.1	1.5	+87.5
15-19	2.1	1.9	1.8	1.7	2.3	1.6	1.0	1.4	1.9	_9.5
20-24	3.3	2.6	1.5	1.8	1.3	1.4	2.1	1.6	3.3	_0.0
25-29	4.1	2.3	2.5	1.7	1.4	2.5	1.9	1.8	2.5	_39.0
30-34	4.4	2.1	3.0	2.6	3.5	2.5	1.1	2.2	2.9	_34.1
35-39	4.0	3.0	2.2	3.4	1.9	1.6	1.5	4.2	3.5	_12.5
40-44	5.9	5.2	6.2	6.1	5.3	4.2	5.2	6.0	4.7	_20.3
45-49	7.8	8.4	8.7	8.0	6.2	4.9	6.7	5.5	8.6	+10.3
50-54	16.7	9.6	12.7	12.4	8.4	7.4	11.0	10.1	11.9	_28.7
55-59	24.3	22.8	30.0	22.3	16.2	14.2	18.4	23.1	19.7	_18.9
60-64	36.7	43.4	42.1	32.2	36.6	26.7	25.8	31.5	34.1	_7.1
65-69	49.7	62.8	38.0	34.0	43.0	46.1	43.5	37.1	48.0	_2.0
70+	85.0	87.5	116.9	76.2	83.7	78.5	86.0	86.8	97.4	+14.6
All Ages	9.5	8.0	8.9	8.0	6.8	6.5	6.5	7.2	8.6	_9.5

TABLE 3.9

Percentage distribution of in and out-patients treated in government medcal institutions and deaths of inpatients by major cause groups 1983

Group No.	Major Cause Group	% of patients	% for deaths
I	Infective and parasitic diseases	18.11	39.68
II.	Neoplasms	1.04	4.59
III	Endoorine, Nutritional and Metabolic diseases and Immunity disorders	8.54	2.15
IV.	Diseases of blood and blood forming organs	17.94	2.91
V.	Mental disorders	1.28	0.20
VI.	Diseases of the nervous system and sense organs	8.13	5.87
VII.	Diseases of the circulatory system	2.79	17.68
VIII.	Diseases of the Respiratory system	12.87	6.98
IX.	Diseases of the Digestive system	6.57	3.69
X.	Diseases of the Conito Urinary system	2.14	1.13
XI.	Complications of pregnancy, child birth and puerporium	2.02	2.68
XII.	Diseases of Skin and suboutaneous tissue	10.38	0.23
XIII.	Diseases of the Musculoskalotal system and connective tissue	3.20	0.10
XIV.	Congenital anomalico	0.13	0.52
XV.	Certain conditions originating in perinatal period	0.14	1.93
XVI.	Symptoms, signs and illdefined conditions	1.96	1.48
XVII.	Injury and poisoning	2.76	8.19
	Total for Diseases, Injury and Poisoning	100.00	100.00

TABLE 3.10

Malaria cases Detected in Andhra Pradesh

YEAR	POSITIVE CASES		
	P.V.	P.F.	TOTAL
1970	10,144	2,536	12.600
1971	21,202	5,948	27,150
1972	40,373	10,092	50,465
1973	84,179	11,440	95,619
1974	101,939	14,436	116,373
1975	134,943	16,160	151,103
1976	197,172	20,001	217,773
1977	103,113	11,107	114,220
1978	62,215	9,508	71,723
1979	46,624	12,466	59,466
1980	25,555	10,649	36,204
1981	20,032	18,202	38,234
1982	21,744	13,198	34,942
1983	23,944	11,694	35,638
1984	27,114	19,124	46,238
1985	22,454	14,360	36,814
1986	18,610	10.226	28,836

TABLE 3.12

Incidence of Cholera and Gastro-enteritis in Andhra Pradesh

Year	CHOLERA		GASTRO-ENTERITIS	
	Cases	Deaths	Cases	Deaths
1978	761	26	18,580	1,381
1979	285	10	17,528	846
1980	591	15	25,817	1,737
1981	182	2	16,784	577
1982	132	1	10,080	228
1983	179	8	17,697	718
1984	74	-	14,972	485
1985	126	2	14,762	697
1986	46	1	11,090	392

TABLE 3.11

National Pilaria Control Programme Performance in Andhra Pradesh

S. No.	Description of Activity	1982	1983	1984	1985	1986
1.	No. of Night Blood smears collected	5,38,793	5,25,714	5,98,138	5,84,810	5,35,793
2.	No. of positives for MF	13,913	11,143	13,997	11,089	10,186
3.	MF Rate	2.6	2.2	2.1	4.7	3.8
4.	No. of positives for Diseases	9,472	6,851	8,285	17,421	11,102
5.	Disease Rate	1.8	1.3	1.2	4.4	5.0
6.	Endemicity Rate	4.4	3.5	3.3	8.6	8.8
7.	No. of persons treated	16,908	11,542	13,412	15,532	21,459
8.	Infection rate	1.4	1.0	0.9	0.4	1.0
9.	Infectivity Rate	0.5	0.4	0.4	0.1	0.3

CHAPTER — IV

HEALTH FACILITIES IN ANDHRA PRADESH : DETERMINANTS OF HEALTH STATUS

4.1 Introduction

The previous chapter was an analysis of the indicators of health status with particulars reference to mortality and morbidity. As health status broadly depends on health facilities and nutritional status, an attempt is now made to throw light on the existing health facilities in Andhra Pradesh. Adequate health facilities are a must both from the economic and humanitarian points of view. In the absence of adequate health facilities, mortality is bound to be high, i.e. death rate, infant mortality rate, child mortality rate and maternal mortality rate; and morbidity may also be high resulting in inefficiency, disability, debility, etc. which will have adverse impact on production, productivity, and incomes. The focus in this section is therefore on the health facilities in Andhra Pradesh.

4.2. Profile of the facilities

Table 4.1 depicts the number of seats in MBBS and PG courses and total number of beds in teaching hospitals attached to the colleges. The number of beds per seat will be high if we consider all hospitals. Table 4.2 gives detailed information about medical colleges and teaching hospitals and attached bodies.

4.3 Progress in Quantitative Terms

Table 4.3 throws light on the progress of health facilities during the past two decades. It is a fact that in a period of development, a number of medical institutions, doctors and nurses have all increased over the years. But if we look at the figures relating to population served by one institution or one doctor or one bed per population, the picture is somewhat unsatisfactory.

The population served by the medical institutions has been the subject of a mixed trend through the five year plans, and with every increase in the population, the facilities seem to be clearly inadequate, looked at from the point of the coverage and the number of beds. Population served by one doctor gradually decreased from 30,800 in 1956-57 to 9,568 by 1986 which is an encouraging trend. There has not been much change in nurse-bed ratio and it has slightly decreased from 1:7 to 1:5 during 1956-86.

Table 4.4 to 4.10 indicates medical facilities in various districts. Table 4.11 states that population served by one, doctor, and nurse, and all are on the lower side in Hyderabad. Population served by one bed is highest in Vijayanagaram; population served by one doctor is highest in Prakasam; and population served by one nurse is highest again in Vijayanagaram. As regards number of hospital beds per nurse it is lowest in Nalgonda and highest in Visakhapatnam.

The ideal doctor-population ratio to be aimed at as per the Mudaliar Committee is 1:3500. The doctor population ratio was 1:30800 in 1956-57, 1:12500 in 1966-67 and it came down to 1:9568 in 1986, which is not nearer to the ideal ratio. The ideal bed population ratio is 1:1000. The bed-population ratio was 1:2410 in 1956-57, 1:1960 in 1966-67, and it came to 1:2046 by 1986. The figure is also not close to the ideal ratio.

Table 4.12 indicates the number of specialist hospitals in Andhra Pradesh as on 1-4-1987. Tables 4.13 and 4.14 present the number of hospitals, dispensaries and beds in various states. Table 4.15 and 4.16 comprises information about the PHCs and sub-centres functioning in various states and tribal areas.

Table 4-17 comprises the number of doctors in Government service and total registered doctors and dentists in various states in 1984, 1985. The total number of doctors registered was 503 in 1964, 1054 in 1974 and

26,464 in 1984. The total number of dentists registered was 16 in 1964, 14 in 1974 and 347 in 1984.

4.4 Rural Water Supply

Regarding rural water supply, the following facts are worth mentioning. As on 1-4-1980 in Andhra Pradesh, the number of villages which did not have the source of drinking water within a distance of 1.6 km. or within a depth of 15 metres was 5217. And in 2,355 villages, the existing water source contained excess salinity, iron, fluoride and other toxic elements hazardous to health. In 634 villages the existing sources of water supply were prone to cause diseases like cholera, guinea worm, etc. Thus, the number of total problem villages was 8,206. The number of problem villages covered was 487 during 1980-81; 2,032 in 1981-82; 2,641 in 1982-83, 1,548 in 1983-84, 1,386 in 1984-85 and the total covered during 1980-85 was 8, 094.

4.5 Health Status—A Regression Analysis

We have collected time-series data for fifteen years from 1970-85 for the following variables :

1. age—specific—death—rates,
2. number of hospitals and dispensaries,
3. number of doctors, and
4. number of beds.

We have selected an average figure for all ages of age-specific-death-rate as the dependent variable and the remaining three variables as independent variables.

A simple linear regression of the form given below has been chosen for regression analysis :

$ASDR \quad a_0 + a_1H + a_2D + a_3B$ where

$ASDR$ = The age-specific-death-rate (average for all ages)

H = Number of hospitals and dispensaries

D = Number of Doctors

B = Number of Beds.

The method of estimation is the ordinary Least squares (OLS).

The following is the estimated regression equation:

$$ASDR = 52.509 — 0.009H^{**} — 0.0005d — .0009^{*}B$$

$$(1.92) \qquad (0.41) \qquad (-2.61)$$

$R^2 = 0.94, R^{-2} = 0.92.$

Values given in the brackets are t-values.

*indicates significance of the regression co-efficient at 5 per cent level

**indicates significance of the regression coefficient at 10 per cent level.

The multiple correlation co-efficients R^2 reveals that the independent variables explain 94 per cent of variation in the dependent variables.

We can observe from the estimated regression equation that the explanatory variable - 'number of beds', is significant at 5 per cent level of significance. Similarly, the explanatory variable - number of hospitals, is significant at 10 per cent level of significance. Both the variables have the negative sign, indicating that both explanatory variables are negatively related to the age-specific-death-rate. However, the number of hospitals and the number of beds, have very low regression coefficients. The number of hospitals as a variable has a regression coefficient of - -0.009 and the number of beds has a coefficient of -0.0009. The implication of these regression coefficients may be that the coefficients are statistically significant though, their impact on mortality rate (ASDR) seems to be marginal.

Thus, the relationship between dependent variable and the explanatory variables is statistically significant, but the impact of the explanatory variables (as explained by regression coefficients) is marginal.

This conclusion is supported by the fact that rural mortality is lower when compared to urban mortality, in spite of the fact that health facilities are inadequate in rural areas, as already evidenced in the previous chapter.

4.6 Health Facilities in 1988

As a result of intensive planned efforts made in the State, a number of key programmes have come to be adopted, and the progress in health facilities has been substantial at the end of the current five year plan. The incidence of *Malaria* has been alarming in some of the cities due to inflow of working populations and urbanization which entailed extensive spray operations, for keeping malaria under control, and the total expenditure in the period 1983-88 on this alone has been of the order of Rs. 68 crores. The National *Leprosy* Eradication Programme has come into operation in 1982-83 with the Multi Drug Therapy so as to eradicate leprosy by 2000 AD, and the total expenditure incurred on this account from 1983 to 1988 has been Rs. 15 crores under plan and Rs. 29 crores under non-plan account. In the year 1985, the *School Health* programme was launched for promoting health status of primary school children, and for early detection and prevention of illness. The activities initiated under the Scheme are: (a) initial screening by trained staff, (b) medical check-up periodically, (c) treatment of acute and minor illness, (d) referral to specialists, (e) immunization, (f) first-aid and follow up, and (g) issue of computerised school health cards. Between 1985 and 1988, an amount of Rs. 4.97 crores was provided for this purpose. The progress of *primary health care* may be seen from the point of the increase on the increase in the number of primary health centres from 429 in 1983 to 1243 in 1988, and the number of sub-centres from 5550 to 8327.

The budgetary provision made under the *Minimum Needs Programme* for establishing new Primary Health Centres has been Rs. 39.34 crores between the period 1983 to 1988. Under the *National Tuberculosis Control Programme*, the facilities made available are 22 District Centres, one State Centre, 590 microscopy centres, 143 X-ray centres, 236 centres, 8 TB hospitals, and 2549 Tuberculosis beds. The budget outlay for the entire programme through 1982-88 has been Rs.2.62 crores on plan and Rs.13.72 crores on non-plan account. *The Family Welfare Programme*, which is a cent per cent centrally sponsored scheme, is implemented under the auspices of the State Government, the private sector, and the voluntary organizations, and the budget provision for the programme in the year 1988-89 has been Rs.44 crores towards infrastructure and services such as prenatal, natal, post natal, child care, and contraceptive service.

The *Universal immunisation programme* in the State in 10 districts. in 1987, 13 districts in 1988, involving eight medical colleges, municipalities, and voluntary organizations. The *Oral Rehydration*

Therapy Programme is being implemented since 1988 in 15 districts, with the assistance of the Central Government for training the medical and paramedical staff. The Government have organised 10 training schools for nurses, 12 under voluntary agencies, and 75 schools under private agencies.

It is envisaged that an amount of Rs. 36.75 crores be spent on schemes of *medical education*, and for strengthening specialities and super specialities under the Seventh five year plan of the Staff. The Plan Outlay on *Indian Medicines and Homeopathy Department* has been Rs.9.41 crores between 1982-83 and 1988-89, allocated to strengthen the 3 Ajurveda, 1 Unani, and 3 Homeopathy colleges, and 6 non-teaching hospitals, and 854 dispensaries and an equal number of municipal and rural dispensaries.

The *Employees State Insurance Scheme* has been in force since 1955, covering about 3 lakh employees in various establishments, and rendering medical care through 108 dispensaries and 6 hospitals, which ensures medical benefit, sickness benefit, maternity benefit, disablement benefit, dependents benefit, and other aspects of comprehensive medical care. And during the Seventh Plan period, 48 schemes have been planned for expansion of the programme of which except one, all the others were started.

TABLE 4.1

Number of Seats in M.B.B.S., and Post-graduate Courses in Various Government Medical Colleges in Andhra Pradesh as on 1-4-1987

S.N.	Medical College	No. of Seats in M.B.B.S.	Total Beds in Teaching Hospitals attached to the Colleges	No. of Beds per Seat	No. of Seats in P.G. Courses
1.	Andhra Medical College, Visakhapatnam	125	1,920	15	97
2.	Rangaraya Medical College, Kakinada	100	900	9	68
3.	Guntur Medical College, Guntur	125	1,197	10	78
4.	Sri Venkateswara Medical College, Tirupati	100	692	7	67
5.	Kurnool Medical College, Kurnool	120	830	7	77
6.	Osmania Medical College, Hyderabad	150	4,569	30	162
7.	Gandhi Medical College, Hyderabad.	100	1,000	10	74
8.	Kakatiya Medical College, Warangal	100	916	9	72
	Total	920	12,024	97	695

Note :— Government General Hospital, Vijayawada with 412 beds is also a Teaching Hospital attached to Siddharta Medical College which is a Private Medical College. With this total teaching beds are 12,436.

TABLE 4.2

Medical Educational Institutions and Rural Health Centers

Medical College	Hospital	Beds
1. Andhra Medical College	King George Hospital	1115
	Victoria Hospital	147
	T B & I D Hospital	288
	Mental Hospital	300
	RCD Hospital	70
	Total	1920
2. Rangaraya Medical College	Government General Hospital	900
3. Guntur Medical College	Government General Hospital	977
	Government fever Hospital	40
	T B Hospital	180
	Total	1197
4. S V Medical College Tirupati	S V R R Hospital	562
	Government Maternity Hospital	130
	Total	692
5. Kurnool Medical College	Government General Hospital	830
6. Usmania Medical College, Hyderabad	Usmania General Hospital	1168
	Niloufer Hospital	310
	Eye Hospital	350

(Table contd.)

	Cancer Hospital	250
	Nizam Hospital	246
	Mental Hospital	600
	T B Hospital	670
	Maternity Hospital I	440
	Fever Hospital	330
	E N T Hospital	75
	Maternity Hospital II	130
	Total	4569
7. Gandhi Medical	Gandhi Hospital	1000
8. Kakatiya Medical College Warangal	M G M Hospital	700
	Maternity Hospital I	50
	Maternity Hospital II	66
	T B Hospital	100
	Total	916
	Grand Total	12,024

TABLE 4.3

Progress in Medical Care in Andhra Pradesh

ITEM	1956	1966	1976	1986
Institution and Beds				
1. Hospitals	170	281	306	337
2. Dispensaries	226	680	702	628
3. PHCS	136	365	416	906
4. Total Medical Institutions	532	1246	1424	1871
5. Beds	13995	19745	23445	29189
Personnel				
1. Doctors	1094	3096	3726	6241
2. Nurses	1112	2491	3105	5753
Population Served by				
1. Medical Institute	63000	31000	33430	31917
2. Bed	2410	1960	2030	2046
3. Doctor	30800	12500	12776	9568
4. Nurse Bed Ratio	1:9	1:7	1:6.8	1:5.1

TABLE 4.4

Medical Institutions and the University of Health Sciences

District	Hospitals	Beds
Visakhapatnam	5	1920
East Godavari	1	900
Krishna	1	412
Guntur	3	1197
Chittoor	2	692
Kurnool	1	830
Rangareddy	-	-
Hyderabad	11	5323
Medak	-	-
Warangal	4	916

TABLE 4.5

Medical Institutions and the Vaidya Vidhana Parishad

District	Hospitals	Beds
Srikakulam	8	440
Vijayanagaram	2	130
Visakhapatnam	3	92
East Godavari	5	395
West Godavari	5	522
Krishna	7	663
Guntur	7	337
Prakasam	4	258
Nellore	6	694
Chitoor	8	524
Cuddapah	5	495
Anantapur	7	628
Kurnool	4	201
Mahboobnagar	4	275
Rangarqeddy	2	66
Hyderabad	5	423
Medau	7	418
Nijamabad	5	442
Adilabad	7	420
Karimnagar	5	377
Warangal	3	100
Khammam	3	266
Nalgonda	5	314
Total	117	8480

TABLE 4.6

Medical Institutions under Director of Health and Family Welfare in 1987

Sl.No.	District	Hospitals		Dispensaries		P.H.Cs		M.M. Units	All Institutions	
		No.	Beds	No.	Beds	No.	Beds		No.	Beds
1.	Srikakulam	4	70	22	20	35	208	2	63	298
2.	Vijayanagaram	8	97	11	—	34	202	6	59	299
3.	Visakhapatnam	11	124	15	—	38	252	6	70	376
4.	East Godavari	16	221	45	—	40	242	2	103	463
5.	West Godavari	7	66	11	6	41	236	5	64	308
6.	Krishna	9	141	11	—	40	226	1	61	367
7.	Guntur	4	52	13	12	46	256	1	64	320
8.	Prakasam	7	64	11	—	49	266	2	69	330
9.	Nellore	11	172	18	—	40	232	2	71	404
10.	Chittoor	3	53	11	—	51	298	1	66	351
11.	Cuddapah	5	48	7	—	43	234	1	56	282
12.	Anantapur	9	132	14	9	49	270	1	73	411
13.	Kurnool	10	140	22	4	46	256	1	79	400
14.	Mahaboobnagar	15	263	2	—	51	300	2	70	563
15.	Rangareddy	14	532	2	4	23	158	—	39	694
16.	Hyderabad	4	56	4	—	—	—	—	8	56
17.	Medak	4	80	6	—	35	200	—	45	300
18.	Nizamabad	7	110	1	—	27	180	—	35	290
19.	Adilabad	7	94	7	14	36	224	6	56	332
20.	Karimnagar	11	150	4	—	49	260	1	65	410
21.	Warangal	3	58	1	—	45	242	2	51	300
22.	Khamman	15	169	4	14	33	188	5	57	371
23.	Nalgonda	6	213	2	—	55	278	—	63	491
	Total	190	3,105	244	83	906	5,228	47	1,387	8,416

TABLE 4.7

Medical Institutions under the Government Agencies 1987

Sl.No.	District	Hospitals		Dispensaries		P.H.Cs		M.M. Units	All Institutions	
		No.	Beds	No.	Beds	No.	Beds		No.	Beds
1.	Srikakulam	12	510	22	20	35	208	2	71	738
2.	Vijayanagaram	10	227	11	—	34	202	6	61	429
3.	Visakhapatnam	19	2,136	16	10	38	252	6	79	2,398
4.	East Godavari	22	1,516	46	15	40	242	2	110	1,773
5.	West Godavari	12	588	11	6	41	236	5	69	830
6.	Krishna	17	1,216	12	6	40	226	1	70	1,448
7.	Guntur	14	1,586	15	12	46	256	1	76	1,854
8.	Prakasam	11	322	11	—	49	266	2	73	588
9.	Nellore	17	866	18	—	40	232	2	77	1,098
10.	Chittoor	13	1,269	12	5	51	298	1	77	1,572
11.	Cuddapah	10	543	7	—	43	234	1	61	777
12.	Anantapur	16	760	14	9	49	270	1	80	1,039
13.	Kurnool	15	1,171	24	4	46	256	1	86	1,431
14.	Mahaboobnagar	19	538	2	—	51	300	2	74	838
15.	Rangareddy	16	598	3	10	23	158	—	42	766
16.	Hyderabad	20	5,802	26	—	—	—	—	46	5,802
17.	Medak	11	498	7	6	35	220	—	53	724
18.	Nizamabad	12	552	1	—	27	180	—	40	732
19.	Adilabad	14	514	7	14	36	224	6	63	752
20.	Karimnagar	16	527	4	—	49	260	1	70	787
21.	Warangal	10	1,074	2	30	45	242	2	59	1,346
22.	Khamman	18	435	4	14	33	188	5	60	637
23.	Nalgonda	11	527	2	—	55	278	—	68	805
	Total	335	23,775	277	161	906	5,228	47	1,565	29,164

TABLE 4.8

Government Medical Institutions and Beds in Rural Andhra Pradesh (1987)

S.N.	District	Hospital		Dispensaries		P.H.Cs		No. of M.M Units	Total	
		No.	Beds	No.	Beds	No.	Beds		No.	Beds
1.	Srikakulam	4	118	21	20	35	208	2	62	346
2.	Vijayanagaram	4	36	10	—	34	202	6	54	238
3.	Visakhapatnam	9	106	14	10	38	252	6	67	368
4.	East Godavari	8	87	43	15	40	242	2	93	244
5.	West Godavari	3	26	10	6	41	236	5	59	268
6.	Krishna	5	110	11	6	40	226	1	57	342
7.	Guntur	1	20	14	12	46	256	1	62	288
8.	Prakasan	4	39	10	—	49	266	2	65	305
9.	Nellore	6	89	17	—	40	232	2	65	321
10.	Chittoor	4	95	11	5	51	298	1	67	398
11.	Cuddapah	2	15	6	—	43	234	1	52	249
12.	Anantapur	3	46	12	3	49	270	1	65	319
13.	Kurnool	4	52	22	4	46	256	1	73	312
14.	Mahaboobnagar	9	118	2	—	51	300	2	64	418
15.	Rangareddy	11	514	2	6	23	158	—	36	678
16.	Hyderabad	—	—	—	—	—	—	—	—	—
17.	Medak	4	85	6	—	35	220	—	45	305
18.	Nizamabad	5	70	—	—	27	180	—	32	250
19.	Adilabad	6	94	6	8	36	224	6	54	326
20.	Karimnagar	6	115	3	—	49	260	1	59	375
21.	Warangal	4	88	2	30	45	242	2	53	360
22.	Khamman	10	137	4	14	33	188	5	52	339
23.	Nalgonda	3	50	2	—	55	278	—	60	328
	Total :	115	2,110	238	139	906	5,228	47	1,296	7,477

TABLE 4.9

Government Medical Institutions and Beds in Urban Andhra Pradesh 1987

S.N.	District	Hospitals		Dispensaries		TOTAL	
		No.	Beds	No.	Beds	No.	Beds
1.	Srikakulam	8	392	1	—	9	392
2.	Vijayanagaram	6	191	1	—	7	191
3.	Visakhapatnam	10	2,030	2	—	12	2,030
4.	East Godavari	14	1,429	3	—	17	1,429
5.	West Godavari	9	562	1	—	10	562
6.	Krishna	12	1,106	1	—	13	1,106
7.	Guntur	13	1,566	1	—	14	1,566
8.	Prakasam	7	283	1	—	8	283
9.	Nellore	11	777	1	—	12	777
10.	Chittoor	9	1,174	1	—	10	1,174
11.	Cuddapah	8	528	1	—	9	528
12.	Anantapur	13	714	2	6	15	720
13.	Kurnool	11	1,119	2	—	13	1,119
14.	Mahaboobnagar	10	420	-	-	10	420
15.	Rangareddy	5	84	1	4	6	88
16.	Hyderabad	20	5,802	26	-	46	5,802
17.	Medak	7	413	1	6	8	419
18.	Nizamabad	7	482	1	—	8	482
19.	Adilabad	8	420	1	6	9	426
20.	Karimnagar	10	412	1	—	11	412
21.	Warangal	6	986	—	—	6	986
22.	Khammam	8	298	—	—	8	298
23.	Nalgonda	8	477	—	—	8	477
	Total	220	21,665	49	22	269	21,687

Included Rural Health Centres and I.T. Dispensaries taken over by Government.

TABLE 4.10

Medical Institutions Run by all Agencies including local bodies (1987)

Sl. No.	District	Hospitals		Dispensaries		P.H. Cs		M.M Units		All Institutions
		No.	Beds	No.	Beds	No.	Beds	No.	Beds	
1.	Srikakulam	12	510	22	20	35	208	2	71	738
2.	Vijayanagaram	10	227	17	—	34	202	6	67	429
3.	Visakhapatnam	19	2,136	53	10	38	252	6	116	2,398
4.	East Godavari	22	1,516	78	15	40	242	2	142	1,773
5.	West Godavari	12	588	54	6	41	236	5	112	830
6.	Krishna	19	1,241	12	6	40	226	1	72	1,473
7.	Guntur	14	1,586	18	12	46	256	1	79	1,854
8.	Prakasam	11	322	23	—	49	266	2	85	588
9.	Nellore	17	866	81	—	40	232	2	140	1,096
10.	Chittoor	13	1,269	19	5	51	298	1	84	1,572
11.	Cuddapah	10	543	82	—	43	234	1	136	777
12.	Anantapur	16	760	16	9	49	270	1	82	1,039
13.	Kurnool	15	1,171	36	4	46	256	1	98	1,431
14.	Mahaboobnagar	19	538	2	—	51	300	2	74	638
15.	Rangareddy	16	598	3	10	23	158	—	42	766
16.	Hyderabad	20	5,802	38	—	—	—	—	58	5,802
17.	Medak	11	498	7	6	35	220	—	53	724
18.	Nizamabad	12	552	1	—	27	180	—	40	732
19.	Adilabad	14	514	7	14	36	224	6	63	752
20.	Karimnagar	16	527	4	—	49	260	1	70	787
21.	Warangal	10	1,074	2	30	45	242	2	59	1,346
22.	Khamman	18	435	4	14	33	188	5	60	637
23.	Nalgonda	11	527	2	—	55	278	—	68	805
	Total	337	23,800	581	161	906	5,228	47	1,871	29,189

*Inclusive of R.H. Cs.

TABLE 4.11

Beds in Government and Local Institutions, and Doctors and Nurses in Government Service (1987) and Population Served

S. No.	District	Beds	Doctors	Nurses	Population Served by one			No. of hospital beds per Nurse
					Bed	Doctor	Nurse	
1.	Srikakulam	738	157	125	2,812	13,220	16,604	5.9
2.	Vijayanagaram	429	146	84	4,512	13,259	23,046	5.0
3.	Visakhapatnam	2,398	430	391	1,640	6,763	7,438	6.2
4.	East Godavari	1,773	536	329	2,300	7,609	12,397	5.3
5.	West Godavari	830	190	166	3,832	16,739	19,159	4.9
6.	Krishna	1,473	215	270	2,301	15,762	12,551	5.5
7.	Guntur	1,854	487	356	2,048	7,796	10,665	5.2
8.	Prakasam	588	139	115	4,389	18,567	22,442	5.2
9.	Nellore	1,098	209	191	2,051	10,777	11,792	5.9
10.	Chittoor	1,572	422	339	1,925	7,170	8,925	4.6
11.	Cuddapah	777	153	171	2,769	14,063	12,583	4.4
12.	Anantapur	1,039	190	218	2,708	14,808	12,906	4.6
13.	Kurnool	1,431	402	323	1,864	6,637	8.060	4.3
14.	Mahaboobnagar	838	177	162	3,292	15,588	17,031	5.3
15.	Rangareddy	766	106	132	2,444	17,662	14,183	5.9
16.	Hyderabad	5,802	1,021	1,164	451	2,562	2,247	5.0
17.	Medak	724	158	163	2,783	12,754	12,363	4.3
18.	Nizamabad	732	143	150	2,605	13,333	12,711	4.9
19.	Adilabad	752	148	161	2,466	12,532	11,520	4.5
20.	Karimnagar	787	170	169	3,464	16,036	16,131	4.6
21.	Warangal	1,346	317	265	1,905	8,087	9,674	5.0
22.	Khamman	637	139	124	3,118	14,229	16,017	5.0
23.	Nalgonda	805	186	185	3,182	13,770	13,845	4.2
	Total	29,189	6,241	5,753	2,046	9,568	10,380	5.1

TABLE 4.12

Number of Specialists hospitals in the districts in Andhra Pradesh as on 1-4-1987

Sl. No.	District	T.B.	Leprosy	Mental	Cancer	Maternity	Paediatrics	Eye	Ent	Orthopaedics	Infernal diseases	Total special hospitals	Beds in special hospital
1.	Srikakulam	—	—	—	—	—	—	—	—	—	—	1	50
2.	Vijayanagaram	—	—	—	—	—	—	—	—	—	—	—	—
3.	Visakhapatnam	1	—	1	—	1	1	—	—	—	—	4	805
4.	East Godavari	—	1	—	—	1	—	—	—	—	—	2	32
5.	West Godavari	—	—	—	—	—	—	—	—	—	—	—	—
6.	Krishna	—	1	—	—	—	—	—	—	—	—	1	50
7.	Guntur	1	—	—	—	—	—	—	—	—	1	2	220
8.	Prakasam	—	—	—	—	—	—	—	—	—	—	—	—
9.	Nellore	1	1	—	—	2	1	—	—	—	—	5	425
10.	Chittoor	—	—	—	—	1	—	—	—	—	—	1	130
11.	Cuddapah	—	—	—	—	—	—	—	—	—	—	—	—
12.	Anantapur	—	—	—	—	—	—	—	—	—	1	1	60
13.	Kurnool	—	—	—	—	1	—	—	—	—	—	1	46
14.	Mahaboobnagar	—	1	—	—	—	—	—	—	—	—	1	60
15.	Rangareddy	1	—	—	—	—	—	—	—	—	—	1	417
16.	Hyderabad	1	—	1	1	3	1	1	1	—	1	10	3,205
17.	Medak	—	—	—	—	—	—	—	—	—	—	—	—
18.	Nizamabad	—	—	—	—	1	—	—	—	—	—	1	16
19.	Adilabad	—	—	—	—	—	—	—	—	—	—	—	—
20.	Karimnagar	1	—	—	—	1	—	—	—	—	—	2	50
21.	Warangal	1	—	—	—	2	—	—	—	—	—	3	216
22.	Khamman	—	—	—	—	—	—	—	—	—	1	1	24
23.	Nalgonda	—	—	—	—	—	—	—	—	—	—	—	—
	State Total	7	5	2	1	13	3	1	1	—	4	37	
	Total beds in these Specialists hospitals	1,959	194	900	250	1,214	410	350	75	—	454		5,806

TABLE 4.13

Hospitals and Beds in various States as on 1-1-1986

		Government and Local Bodies			Private and Voluntary organisations		Total		
Sl.No.	State	Hospitals	Beds	Population* Served per Bed	Hospitals	Beds	Hospitals	Beds	Population* Served per Bed
	ALL INDIA+	4.096	395,042	1,882	3,381	141,182	7,477	536,224	1,386
1.	Andhra Pradesh	349	25,297	2,309	266	11,103	615	36,400	1,605
2.	Assam	96	9,576	2,344	29	2,958	125	12,534	1,791
3.	Bihar (1-1-81)	101	14,127	4,835	125	8,447	226	22,574	3,026
4.	Gujarat	206	18,974	1,985	1,030	19,941	1,236	38,915	968
5.	Haryana	69	4,961	2,886	18	2,566	87	7,527	1,902
6.	Himachal Pradesh	60	3,851	1,218	8	447	68	4,298	1,091
7.	Jammu & Kashmir	45	5,914	1,130	2		47	5,914	1,130
8.	Karnataka	194	24,640	1,662	44	6,702	238	31,342	1,307
9.	Kerala	155@	29,224@	940	173	14,309	328	43,533	631
10.	Madhya Pradesh	289@	19,891	2,881	N.A.	N.A.	289	19,891	2,881
11.	Maharashtra	420	55,911	1,232	1,120	35,296	1,540	91,207	755
12.	Manipur	17	1,237	1,289	3	65	20	1,302	1,225

(Table contd.)

Hospitals and Beds in various States as on 1-1-1986

		Government and Local Bodies			Private and Voluntary organisations		Total		
Sl.No.	State	Hospitals	Beds	Population* Served per Bed	Hospitals	Beds	Hospitals	Beds	Population* Served per Bed
13.	Meghalaya (1-1-85)	9	1,449	1,018	4	616	13	2,065	714
14.	Nagaland	35	1,137	783	2	32	37	1,169	762
15.	Orissa	280	10,996	2,593	31	1,227	311	12,223	2,333
16.	Punjab (1-4-85)	223	11,704	1,541	35	2,913	258	14,617	1,234
17.	Rajasthan	206	17,510	2,192	38	2,034	244	19,544	1,964
18.	Sikkim	5	477	776	-	-	5	477	776
19.	Tamilnadu	338	34,826	1,492	64	9,437	402	44,263	1,174
20.	Tripura	17	1,277	1,789	-	-	17	1,277	1,789
21.	Uttar Pradesh	576	35,252	3,456	159	12,026	735	47,278	2,577
22.	West Bengal	284	46,477	1,282	125	6,430	409	52,907	1,126

Note—$^{+}$ Inclusive of figures for Union Territories.

* Ratio has been worked out on the projected population to which the data relates.

@ Only Govt. as the data for Local bodies is not available.

Source : Health Information of India, 1986.

TABLE 4.14

Dispensaries and Beds in Various States 1-1-1986

Sl. No.	State	Government and Local Bodies		Private & Voluntary Organisations		Total	
		Dispensaries	Beds	Dispensaries	Beds	Dispensaries	Beds
	ALL INDIA +	15,418	29,536	11,431	9,142	26,849	38,678
1.	Andhra Pradesh	756	277	37	-	793	277
2.	Assam	419	122	-	-	419	122
3.	Bihar (1-1-81)	910	4,926	92	-	1,002	4,926
4.	Gujarat	790	747	3,987	1,392	4,777	2,139
5.	Haryana	234	648	5	-	229	648
6.	Himanchal Pradesh	225	230	2	7	227	237
7.	Jammu & Kashmir	648	52	-	-	648	52
8.	Karnataka	1,543	3,194	11	4	1,554	3,198
9.	Kerala	625	1,624	971	6,712	1,596	8,336
10.	Madhya Pradesh	522	240	+	+	522	240
11.	Maharashtra	1,490	1,898	5,769	761	7,259	2,659
12.	Manipur	52	-	-	-	52	-
13.	Meghalaya (1-1-85)	58	48	-	-	58	48
14.	Nagaland	72	36	-	-	72	36
15.	Orissa	258	-	22	-	280	-
16.	Punjab (1-4-1985)	1,778	6,875	12	12	1,790	6,887
17.	Rajasthan	1,319	1,947	56	25	1,375	1,972
18.	Sikkim	-	-	-	-	-	-
19.	Tamilnadu	651	574	18	90	669	664
20.	Tripura	234	-	-	-	234	-
21.	Uttar Pradesh	1,681	5,653	69	76	1,750	5,729
22.	West Bangal	489	10	62	-	551	10

+ Inclusive of the figures for Union Territories.

Source : Health Information of India 1986.

TABLE 4.15

Primary Health Centres and Sub-Centres functioning in Various States. As on 31-3-1986

		Primary Health Centres		Sub-Centres*		
Sl.No.	State	Upgraded	Total	Total	Functioning without A.N.M.	% of Sub-Centres without A.N.M. to total SubCentres
	All India +	711	8,496	88,950	5,968	6.7
1.	Andhra Pradesh	26	906	6,516	546	8.4
2.	Assam	12	199	2,112	117	5.5
3.	Bihar	50	665	7,699	1,569	20.4
4.	Gujarat	21	305	5,706	Nil	Nil
5.	Haryana	4	164	1,796	120	6.7
6.	Himanchal Pradesh	30	129	952	113	11.9
7.	Jammu & Kashmir	12	97	403	N.A.	N.A.
8.	Karnataka	57	402	4,964	477	9.6
9.	Kerala	4	292	2,705	Nil	Nil
10.	Madhya Pradesh	75	680	6,615	1,084	16.4
11.	Maharashtra	147	1,343	7,711	Nil	Nil
12.	Manipur	5	40	322	Nil	Nil

(Table contd.)

Primary Health Centres and Sub-Centres functioning in Various States. As on 31-3-1986

		Primary Health Centres		Sub-Centres*		
Sl.No.	State	Upgraded	Total	Total	Functioning without A.N.M.	% of Sub-Centres without A.N.M. to total SubCentres
13.	Meghalaya	2	36	274	37	13.5
14.	Nagaland	3	24	196	52	26.5
15.	Orissa	42	362	4,326	565	13.1
16.	Punjab	10	170	2,653	Nil	Nil
17.	Rajasthan	76	398	4,292	Nil	Nil
18.	Sikkim		19	82	5	6.1
19.	Tamilnadu	30	434	6,709	445	6.6
20.	Tripura	3	135	239	114	47.7
21.	Uttar Pradesh	74	1,316	15,545	800	5.1
22.	West Bengal	22	342	6,533	Nil	Nil

* Figures are provisional.

+ Inclusive of figures for Union Territories.

Source : Health Information of India, 1986.

TABLE 4.16

Primary Health Centres and Sub-Centres required in position in Tribal Areas (31-3-86)

Sl.No.	States/UTs	Population in TSP Area and in Tribal pockets (in lakhs)		PHCs/SHCs		Sub-Centres	
		Total	Tribal	Required	In Position	Required	In Position
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra Pradesh	27.43	14.8	137	34	915	273
2.	Assam	22.9	12.57	121	52	804	250
3.	Bihar	87.56	43.29	461	144	3073	1417
4.	Gujarat	54.8	37.8	261	83	1744	964
5.	Himachal Pradesh	1.6	1.2	8	17	54	58
6.	Karnataka	37.8	1.6	240	61	1600	603
7.	Kerala	1.6	1.2	7	9	47	21
8.	Madhya Pradesh	124.1	73.7	741	255	4939	2849
9.	Maharashtra	45.3	25.7	201	237	1337	1044
10.	Manipur	4.0	3.9	25	23	163	152
11.	Meghalaya	13.4	10.8	67	43	446	267
12.	Nagaland	7.8	6.5	39	30	260	196

(Table contd.)

Primary Health Centres and Sub-Centres required in position in Tribal Areas

Sl.No.	States/UTs	Population in TSP Area and in Tribal pockets (in lakhs)		PHCs/SHCs		Sub-Centres	
		Total	Tribal	Required	In Position	Required	In Position
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
13.	Orissa	80.7	44.4	383	188	2557	1132
14.	Rajasthan	34.9	25.6	183	54	1223	395
15.	Sikkim	0.3	0.2	2	3	10	8
16.	Tamil nadu	2.8	2.1	12	2	83	128
17.	Tripura	6.7	4.5	33	16	220	171
18.	Uttar Pradesh	43.8	2.1	219	24	1460	220
19.	West Bengal	15.9	10.2	92	21	613	91
20.	Andaman & Nicobar Islands	0.22	0.18	2	1	13	10
21.	Arunachal Pradesh	6.3	4.4	32	34	210	77
22.	Dadra & Nagar Haveli	1.0	0.8	5	3	33	22
23.	Goa, Daman & Diu	0.5	0.1	2	1	17	8
24.	Lakshadweep	0.4	0.38	2	7	13	12
25.	Mizoram	4.9	4.6	25	46	163	172
Total		626.71	332.62	3300	1388	21994	10540

TABLE 4.17

Number of Doctors in Govt. Service, Number of Registered Doctors and average Population served by each Govt. Doctor in States

Sl.No.	State	Doctors in Govt. Service i.e.(31-12-85)	Total Registered Doctors (1984)	Total Registered Dentists (1985)	
		Number	Population served by each	Number	Number
	All India +	63,084	9,258	297,228	9,598
1.	Andhra Pradesh	5,784	10,101	26,464	347
2.	Assam 1-1-79	1,518	11,879	8,630	116
3.	Bihar	N.A.	N.A.	21,621	175
4.	Gujarat	2,681	14,055	17,257	706
5.	Haryana	1,246	11,538	N.A.	182
6.	Himachal Pradesh 1.1.79	535	7,514	N.A.	77
7.	Jammu & Kashmir 1.1.79	800	6,996	3,027@	NoRegistration so far
8.	Karnataka	3,873	10,577	23,470	755
9.	Kerala	4,248	6,470	14,251*	912
10.	Madhya Pradesh 1.1.78	4,251	11,546	6,473	752
11.	Maharashtra	N.A.	N.A.	36,313	1,847
12.	Manipur (30-6-86)	567	2,813	N.A.	No Registration so far

(Table contd.)

Number of Doctors in Govt. Service, Number of Registered Doctors and average Population served by each Govt. Doctor in States

Sl.No.	State	Doctors in Govt. Service i.e.(31-12-85)	Total Registered Doctors (1984)	Total Registered Dentists (1985)	
		Number	Population served by each	Number	Number
13.	Meghalaya	258	5,891	N.A.	-do-
14.	Nagaland	204	4,368	N.A.	-do-
15.	Orissa (31-3-86)	4,136	6,895	8,831	60
16.	Punjab	3,519	5,216	23,272	593
17.	Rajasthan (31-12-84)	3,329	11,273	10,065	No. Regn. so far
18.	Sikkim	95	3,895	N.A.	-do-
19.	Tamilnadu	6,954	7,470	35,644	579
20.	Tripura	470	4,862	N.A.	No. Regn. so far
21.	Uttar Pradesh 31-12-82	7,243	15,880	26,502*	444
22.	West Bengal (31.12.84)	7,943	7,416	35,408@	1,539

* Upto September 1984. @ Upto March 1984

+ Inclusive of the figures for Union Territories.

Source : Medical Council of India, Health Information of India, 1986 (Table 7.10) Dental Council of India.

Doctors Population Ratio for the States and India has been worked-out on the projected population to which the data relates.

CHAPTER — V

POPULATION CONTROL—A DETERMINANT OF HEALTH STATUS

5.1 Population and Economic Development

The relationship between the growth of National Income and growth of population is of fundamental importance from the point of view of human welfare. The main objective of economic development is to enable people to enjoy higher standards of living. But if the rate of growth of population is comparatively higher, per capita income will not increase to desirable levels even if the National Income increases. Hence the need to check the growth of population. The justification for the population control programmes in the underdeveloped countries lies in the fact that the factors determining growth in such countries are not strong enough to ensure sustained economic growth in the face of unchecked population growth. The demographic conditions in these underdeveloped countries are such that, every birth has a negative present value. And health status of a population depends on the size of the population, besides other factors. If a country is over-populated even the basic health facilities cannot be extended to all. Optimum growth of population is of great importance in the sense that it will promote the health status of the people, reduce mortality and morbidity rates and promote maternal and child health. The number of those in the productive age group will increase and this will have a great impact on the development of the country.

5.2 Health and Development

Health is not only. a desirable goal, but an effective means for realising the ulterior objectives of the policies of social and economic development. The many vital links between health and development are thus seen as interacting phenomena with far reaching implications. One such implication is the realization that the availability of health services is only one of the many contributions to health development, and that the improvement of health status of the people requires a wide range of mutually supportive policy measures.

The attainment of health targets is dependent on appropriately defined economic progress, on social policy measures aimed at greater equity on education as promoter of social self care, on improvement in the physical and sanitary environment, on the availability of adequate food supply, on the implementation of appropriate population policies, and also on political and institutional changes enlisting the active cooperation of the public. Hence the emphasis placed on health development as an integrated component of national and international development strategies.[1]

One of the most important factors in fertility decline is mortality itself. It is not babies that parents want but the surviving off-spring. One cannot expect fertility to decline where mortality is high, especially infant and child mortality, and this is supported by many studies. Cases of major fertility decline in the absence of mortality improvements are rare in developing countries today and many regard the reduction of infant and child mortality a precondition for large reductions in fertility in a number of ways. Some diseases may inhibit fertility, particularly malaria.[2] And malnutrition affects both the ability of the mother to bring a pregnancy successfully to completion and affects the length of the fertile period. It may therefore be pointed out that mitigation of some factors in mortality may increase fertility. An important question is the extent to which population growth is affected, if fertility declines from falling mortality. If the reduction in fertility is less than that in mortality, the effect will be to raise the size of growth of population. Most studies found that decline in fertility does not fully compensate for mortality decline in the short run, but the argument ignores long run. In several countries mortality decline has been in progress during the past few decades with little response from fertility.

---

1. Proceedings of the International Conference Population : *Pcpulation, Resources, Environment and Development*, Geneva, pp. 25-29.

2. Gray, R.H., "The Decline in Mortality in Ceylon and the Demographic Effects of Malaria Control", *Population Studies*, Vol. 28, No.2, July, 1974, pp. 205-229.

The neo-Malthusian School assumes that high levels of fertility and mortality, and low levels of production and consumption are the major characteristics of a developing economy. The population grows very slowly and the per capita income and consumption are low. The modern health-promoting devices and death control technology are being transferred to the poorer economies, and they effectively reduce the high death rate and particularly the infant mortality, leaving the birth rate untouched, thus resulting in a high rate of population growth which hinders development. And the increases in national income are swallowed by the new additions to the population. It is conceded that in the countries such as India, Ceylon, Pakistan and other developing countries, the technology of health and hygiene, pesticides and drugs, can be more rapidly infused rather than the technology of large scale industrialization and economic growth. The consequence is rapid population growth as a result of death control. Increase in the production of food and other necessities and services does not keep pace with the growth of population and hence the demographically overloaded machine does not take off. A purposeful control of mortality unaccompanied by an effective control of fertility will therefore have disastrous consequences for the low income countries.

The alternative to the above approach is provided by the Humanitarian School of thought, which however, holds the hope that the eventual and successful demographic transition and development can be achieved, if certain measures are adopted. This school opined that though reduction in fertility is important for a reduction in mortality, it is not imperative, because of a reduction in mortality particularly infant mortality may be a pre-condition for the reduction of fertility,and reduction in infant mortality will raise the probability of survival of children and thereby reinduce people to accept the norm of small family.[3] In developing economies like India, with traditionally high infant mortality rates, the parents desire for children, especially sons, serves as barrier to reduce the size of families.

As far as India is concerned, the theoretical explanation seems to be valid upto a point. The solution therefore, lies in the experience of the developing economies. The inter-relationship between mortality/fertility production and consumption and overall stabilized population and marked economic growth has a kind of independence that cannot be explained solely by the experience.[4]

---

[3] S. Chandrasekhar, *Infant Mortality Population Growth and Family Planning in India*, George Allen and Unwin Ltd., London, 1972, pp. 264-265. The humanitarian model may be examined in comparison with the Neo-Malthusian model, shown alongside.

5.3 Review of Literature

In recent decades, scholars and researchers bestowed considerable attention to population issues. In this context, it is necessary to mention the work of Berelson[5] which cites 60 review works or collections for the years 1973-75 alone. The most comprehensive and regular bibliographical source on population,[6] lists several hundred works every quarter, a large share of which bear on population and development. One of the most significant works is the new edition of the United Nations[7] on the population changes which is a monumental reference work.

There a number of selective collections of papers concerning general issues of population development health, education, food supply. Notable among the sources are U.S. National Academy of Science and IBRD on a broader basis, with rich country material and biological papers,[8] and number of useful bibliographies, the work of Parry serves best.[9] Theoretically there are two significant works treating the relations between growth and population, by Meade[10] and Pitchford's works.[11] Among papers on the issue of research in the field of population, worth mentioning works mentioning works are Berelson,[12] Ford Foundation,[13] ICP[14] and "The Great Debate" of Berelson.[15]

---

[4] *Ibid.*, p. 268.

[5] Berelson, B., 'Social Science Research on Population—A Review, *Population and Development*, Vol. 2, No. 2, June, 1976, pp. 219-266.

[6] Population Index, Princeton Quarterly.

[7] U.N.O., Determinants and Consequences of Population Change.

[8] Parry, H.B. (Ed.), *Population and Its Problems*, Oxford Clarendon Press, 1974.

[9] *Ibid.*

[10] Meade, J.E., The Growing Economy, *Principles of Political Economy*, Vol.2, London, Allen & Unwin, 1968.

[11] Pitchford, J., *Population in Economic Growth*, Amsterdam, North Holland Press, 1974.

[12] Op. cit.

[13] Ford Foundation, Social Science Research on Population and Development, *Papers presented at the Conference at the Ford Foundation*, New York, 29-30 October, 1974.

[14] ICP, the Policy Relevance of Recent Social Science Research on Fertility, Inter-disciplinary, Communications Programme, Washington, DC, *Smithsonian Institution*, September, 1974.

[15] Berelson, B., *The Great Debate, An Instinctive Entertainment*, Occasional Paper, New York, Population Council, 1975.

Today, the population growth rate doubled in less than three decades. A number of studies have been made quantitatively and analytically on the problems involved in population growth, and the recent trends in population and development and the mutual implications. An excellent survey article on the various inter-relationships between population and development relates to R.H. Cassen.[16] There are two additional volumes of readings on the subject and Ronald Ridker[17] and Richard Easterlin[18]. Other important works on population and development are those of Anker Richard and Farooq, Ghazi, M.,[19], Berelson, B., et. al.,[20] Bindsall[21], Demeny[22], Hanser Philip, M.,[23] Hawthorn[24], McNamara Robert, S.,[25] Repetto[26] and Todaro, M.[27]

5.4 Population Growth and the LDCs:

The overall rate of population growth has not been steady and there

---

16. R.H. Cassen, "Population and Development : A Survey", *World Development*, 4, No.5, 10-11 Oct., 1976.

17. Ronald Ridker (Ed.), *Population and Development : The Search on Selective Intervention*, Baltimore : John Hopkins University Press, 1976.

18. Richard Easterlin (Ed.), *Population and Economic Change in Developing Countries* (Chicago) University of Chicago Press for the National Bureau of Economic Research, 1980.

19. Anker Richard and Farooq Ghazi, M. Population and Socio-economic Development : The New Perspective, *International Labour Review*, 117, No.2, March-April, 1978.

20. Berelson, B., et. al., "Population and Current Status and F Policy Options", Centre for Population Studies, working Paper, No.44, *The Population Council*, May, 1979.

21. Bindsall, Nancy, "Analytical Approaches to the Relationship of Population Growth and Development, *Population and Development Review*, 3, No. 31, and 2, March-June, 1977.

22. Demeny Paul, "The Population of the Underdeveloped Countries", *Scientific American*, Sept. 1974 and Demeny Paul, "On the End of the Population Explosion" Population and Development Review, 5, No. 1, March, 1971.

23. Hanser Philip, M., *World Population and Development : Challenges and Prospects*, Syracuse University Press, 1979.

24. Hawthorn, G.(Ed.), *Population and Development*, London, Frankcase, 1979.

25. McNamara Robert, S., "Accelerating Population Stabilisation Through Social and Economic Program" *Overseas Development Council Development*, Paper No. 24, Aug. 1977.

26. Repetto Robert, *Economic Equality and Fertility in Developing countries*, Baltimore : John Hopkins University Press 1979.

27. Todaro Michael, P. "Development Policy and Population Growth : A Framework for Planners", *Population and Development Review* 3, No. 5, 1 and 2 March and June, 1977.

have been many variations in it among different regions. By 1750, the population growth rate had accelerated by 150 times from 0.0002 per cent to 0.3 per cent per year By 1950s, the rate had again accelerated this time by three-fold to about 1.0 per cent per year. Later, in less than three decades the growth rate almost doubled to a rate of 1.8 per cent a year. The relationship between annual percentage increases and the time it takes for a population to double in its size is shown in the following Table.[28]

TABLE-5.1

WORLD POPULATION GROWTH RATES AND DOUBLING TIMES : A HISTORICAL REVIEW

Period 1.	Approximate Growth Rate (Percent) 2.	Doubling Time (Years) 3.
Appearance of man to early historical times	0.002	35000
1650 - 1750	0.3	240
1850 - 1900	0.6	115
1930 - 1940	1.0	70
Present (1980s)	1.8	40

Source: M. Saunders in W.S. Thompson and D.T. Lewis, ***Population problems*** (5th Ed.) New York Mc. Graw Hill 1965), p.384 United Nations, Demographic Year Book for 1971; and Population Reference Bureau 1979, ***World Population Data Sheet.***

The above table shows that the time it takes on a population to double its size has gradually come down. Before 1650 it took nearly 35000 years for the world population to double. Today, in less than 40 years, in little more than one generation, the world population will double Moreover, whereas it took almost 1750 years to add 480 million people to the World's population between AD 1 and the onset of industrial revolution at current growth rates, the same 480 million people are being added to the earth's numbers every 6 years. The reason for the sudden change in overall population trend is that for almost all of recorded history the rate of population change, whether up or down had been strongly influenced by the combined effects of famine, disease, malnutrition, plague and wars, which have all contributed to high fluctuations in death rates. But in the twentieth century, such conditions are strictly under technological and scientific control, Consequently, mortality rate is much lower compared to earlier periods.

---

[28] Michael P. Todaro, ***Economic Development in Third World***, Second Edition 1981, Longman Inc., New York, pp. 160-161.

It is the fall in mortality rates resulting from rapid technological advances in modern medicine, and the spread of modern public health measures, which culminated in the unprecedented increases in world population growth especially in the third world countries. For instance, death rates in Africa, Asia and Latin America have fallen by as much as 50 per cent during the last 20 to 30 years, while birth rates remained relatively high.

In the world's population, more than two thirds live in developing countries and less than one third in the economically developed nations. And every year between 75 and 80 million people are being added to the world population. About 65 million of these additional people will be born each year in the third world countries itself.

The problem of population growth is not simply a problem of welfare and of development. Rapid population growth can have serious potential consequences for the well-being of humanity throughout the world. If development entails the improvement in people's levels of living, their incomes, health, education, and general well-being, and if it also encompasses their self esteem, respect dignity and freedom to choose, then the really important question about population growth is :[29] "How does the contemporary population situation in many third world countries contribute to or retard from their chances of realising the goals of development, not only for the current generation but also for future?" Conversely, how does development affect production and growth?

Some of the major issues relating to this basic question are as follows.[30] Will the third world countries be capable of improving the levels of living for the people with the current and anticipated levels of population growth? To what extent does rapid population-increase make it more difficult to provide external social services including housing, transport, sanitation and security?

---

29. *Ibid.*, p. 158.

30. *Ibid.*, p. 158.

What are the implication of higher population growth rates among the world's poor for overcoming the human misery of absolute poverty? Will world food supply and its distribution be sufficient not only to feed the anticipated population in the coming decades, but also to improve nutritional levels to the point where all humans can have an adequate diet? Will the developing countries be able to extend the coverage and improve the quality of their health and educational systems, so that everyone can at least have the chance to secure adequate health care?

In this context it becomes essential to frame the population issue not simply in terms of numbers or densities or rates or movements but with considerations of "the qualities of human life; prosperity in place of poverty, education in place of ignorance, health in place of deterioration, and adequate opportunities for the next generations of children in place of current limitations." Thus population policy is not an end in itself but only a means—a means to a better life.[31]

At the beginning of the present decade, the world's population was estimated to be in excess of 4.3 billion. The U.N. Projections enunciate that there will be more than 6.1 billion by the end of the 20th century. Over four-fifths of that population will inhabit the developing world. The fact that the world population touched 5 billion mark has significant implications. From 1960 onwards, the rate of growth of population has been rapid. If this trend continues, there will be an addition of one billion every 10 to 13 years and consequently the world population may touch 10 billion mark within another half a century from now For the developing world as a whole, the rate of population growth is 2.0 per cent a year now compared to 2.4 per cent in 1965. Although the annual rate of 2 per cent per annum seems to be innocuous, it has serious implications for the developing countries.

Despite remarkable reduction in fertility in some developing countries, high rates of population growth remain a continuing obstacle to the attainment of a decent life for people in the poor nations of the world. The least understood aspect of population growth is its tendency to continue even after birth rates may have declined significantly. Population growth has a built in tendency to continue, a powerful momentum which is like an automobile speeding in spite of its brakes.

---

[31] Bernard Berelson, *World Population* : Status Report, 1974, Reports on Population, Family Planning, No. 15, Jan, 1974, p. 47.

In the case of population growth; this momentum seems to persist for decades even after birth rates drop.[32] The following are the two reasons for this hidden momentum. Firstly, birth rates cannot be altered overnight as they are influence by social, economic and institutional forces over the course oi centuries, and such influences cannot vanish immediately. The experience of European Nations shows that sub-reduction in birth rates can take many decades. Thus, even if top priority is given to population control in the developing economies, desired levels can be reached only after some decades. Secondly, the hidden momentum only after some decades. Secondly, the hidden momentum of population growth relates to the age structure of developing countries. Nations with high birth rates have large proportion of children and adolescents in their population, sometimes as high as 50 percent. In such a situation, young people greatly outnumber their parents, and when their generation reaches adulthood, the number of potential parents are inevitably be much larger than at present. It follows that even if the new parents have only enough children to replace themselves, i.e. two per couple, the fact that the total number of couples having two children is much greater than the number of couples who previously had four children, which means that population will still increase substantially before levelling off.

The World Development Report (1984)[33] enunciated that the difficulties caused by rapid population growth are not primarily due to finite natural resources, at least not on the world as a whole. But neither does rapid population growth itself automatically trigger technological advance and adaptation. If anything, rapid growth slows the accumulation of skills that encourage technological advance, and in so far as there are returns to land and capital, it is likely to exacerbate income inequalities. This is most obvious at the family level, where high fertility can contribute to a poor start in life for children. And it is also true for countries as a whole.

The economic implications of population reaching the five billion mark are many in number and varied in kind. Some of the important implications are as follows. It will have an adverse effect on development i.e., though the national income increases, per capita income may not increase. Consequently, the gap between developing and industrialised countries will further widen. The already acute problems of unemployment and underemployment will become aggravated. And the deleterious effects of environment are also worth mentioning. The problem of international migration also arises. The prospects of the country to educate higher and higher percentage of persons every year will become gloomy. And the health status of the people will be adversely affected by the rapid growth of population.

---

[32] Todaro, *op. cit.*, pp. 168-169.

[33] *World Development Report*, 1984, Washington DC.

5.5 Population Growth and Health

It is worth considering here the impact of rapid population growth on health. Health is not only a desirable goal but is also a means and indeed an indispensable component of social and economic development. And there are vital links between health and development and population growth and health development.

The health status of the people belonging to the developing economies is much lower due to high mortality and morbidity rates, severe under nutrition, and malnutrition, and lack of protected water supply. Consequently, there is enormous wastage of human resources, which is detrimental to the nation as well as individuals. It may generally be pointed out that population growth is mostly responsible for such a situation.

The situation[34] appears to be much less rosy than might have been expected a decade ago. Today, 800 million people live in developing world in conditions of deprivation with incomes too low to ensure basic nutrition, and with little access to services essential to health and life. At least 450 million have less food than is necessary for a healthy functioning and survival. And more and more lead a precarious existence on the brink of hunger. Less than one third of the population in the developing countries have safe drinking water and adequate sewage disposal. Housing conditions and educational opportunities in urban areas are far from satisfactory. The number of illiterate adults is increasing. About 300 million adults are not gainfully employed. As regards mortality, there has been a significant increase of certain communicable diseases, and little progress has been made with T.B. or sexually transmitted diseases, though smallpox has been largely controlled. Cardio Vascular disease and cancer continue to be the greatest disease problems of the industrialised countries with many middle income countries moving into the same situation. There is an utter lack of basic information from a large part of the world the incidence of various diseases, but the fact remains that the problems have to be overcome if a breakthrough in the improvement of health status of the world's population is to be achieved.[35]

---

[34] International Conference on Population, *Population Resources Environment and Development*, Proceedings of the Expect Ground on Population, Geneva, pp. 25-29, August, 1983.

The major source of difference in population growth rates between the less developed and the more developed countries is the sizable difference in birth rates between them. The following table indicates the recent and projected declines in Third World birth rates to the end of the century. It throws light on the recent declines reported for East and South Asia and the expectation that currently high birth rates in Africa will persist at least until the 1990's.[36]

TABLE-5.2

RECENT AND PROJECTED DECLINES IN THE THIRD WORLD BIRTH RATES

	1950-55	1960-65	1970-75	1980-85	1990-95	1995-2000 AD
World Population	35.6	34.0	30.3	28.1	25.4	23.8
Developed Countries	22.7	20.3	16.7	15.9	15.2	14.9
Developing Countries	41.8	40.0	35.5	32.1	28.3	26.2
Africa	48.8	47.6	46.1	45.00	40.1	36.9
Middle East	47.9	48.0	46.3	44.2	40.0	36.9
Latin America	41.4	39.9	36.3	34.4	31.3	29.6
China	39.8	33.8	26.0	20.1	18.0	17.4
East Asia	36.6	38.3	30.1	26.1	22.4	20.3
South Asia	43.2	44.1	40.5	36.9	31.0	27.8

Source: U. N. World Population Trends and Prospects—1950-2000.

There has been a narrowing of the gap in mortality rates between developed and less developed countries. The primary reason is rapid

---

35. *Ibid.*

36. *Ibid.*

improvement in health conditions throughout the Third World. The following Table throws light on the profile of death rates during 1950-2000 (per 1000 population). Modern vaccination against malaria, smallpox, yellow fever and cholera, as well as the proliferation of public health facilities, clean water supplies, improved nutrition and public education seem to have worked together over the past 25 years to lower death rates by as much as 50 per cent in parts of Asia and Latin America, end by over 30 per cent in much of Africa and the Middle East. Nevertheless, the average duration of life remains almost 20 years greater in the developed countries. The gap has however been sharply reduced in the last 25 years. In 1950, for instance, life expectancy at birth for people in Third World countries averaged 35-40 years compared with 62-65 years in the developed world. By 1980 the differences had fallen to 16 years as life expectancy in the LDCs increased to 56 years, while in the industrial nations it had risen to 72 years, an increase of 13 per cent. Today, because of relatively high infant mortality rates, Africa has the lowest life expectancy, i.e., 47 years, while the most favourable region is Europe. where life expectancy at birth now averages to about 73 years.[37]

TABLE-5.3

DEATH RATES DURING 1950-2000

	1950-55	1960-65	1970-75	1980-85	1990-95	1995-2000
World Total	18.3	14.4	12.0	10.6	9.2	8.7
Developed Countries	10.1	9.0	9.2	9.7	10.1	10.1
Developing Countries	22.2	16.8	13.2	10.9	9.0	8.3
Africa	26.0	22.4	18.8	15.0	12.0	10.6
Middle East	25.3	20.9	16.6	13.4	10.4	9.2
Latin America	14.5	11.5	9.3	7.7	6.5	6.0
China	20.1	13.6	9.4	8.3	7.8	7.7
East Africa	30.0	11.8	8.7	7.4	6.7	6.6
South Africa	24.6	19.8	15.8	12.5	9.9	8.8

Source : U.N. *World Population Trends and Prospects, 1950-2000*.

---

[37] *Ibid.*

It cannot however be denied that whatever provision society makes for health education, the results will be diluted by the growth of population. The growing requirements of growing population may not be met by increased welfare investnents. On the other hand, there may be negative impacts from growing numbers as far as the health of the people is concerned. Development certainly does not result from mere additional populations who are ill-housed, uneducated and poor in health.

Measures of progress in health services are, doctor/population ratios or hospital-bed-population ratios. As health services are one among many forms of provision needed for improved health, it is necessary to take into account the other indicators also, such as the availability in relation to numbers of rural health clinics (or the average distance from clinics of the rural population), or the average frequency of consultation of rural and urban population with trained medical and paramedical personnel and so on. The aim of health inputs has to be in terms of not merely ratios of doctors or hospitals to population, but of services of several kinds. Unless population growth is controlled, health status cannot be enhanced as the availability of services to people will be meagre in the face of rapidly growing population. Hence the need for population control, as it is an important determinant of health status. Even if huge investments are made in the field of Medicare and public health, and the most sophisticated apparatus are made available, health status cannot be promoted if Population growth is not controlled.

5.6 Role of Family Planning Programmes :

The role of family planning programmes in fertility decline is among the most important topics of interest today, with all its controversies. In recent years especially during the period surrounding the world population conference at Bucharest 1974, issues have been overladen with ideological debate. The Third World observers have even expressed that the movement of family planning seemed to look like something forced on the poorer countries by the rich as a substitute for development, or as a potential preventive measure, if not as a racialist design to maintain non-black domination of the world, indicating the scepticism involved in the approach. A recent review[38] cites various aspects of criticism involved in the approach to family planning view.

---

[38] Freedman, R. and Berelson, B., "The Record of Family Planning Programmes" *Studies in Family Planning*, Vol.7, No.1, Jan., 1976, pp. 1-40.

It can be observed that European Fertility declined with little reliance on modern means of contraception. The question as to whether family planning programmes have any place, and should the process of development be the main focus of interest was examined by Kingsley Davis.[39] Criticism, generally relates to the idea that most such programmes work where fertility is already declining, and that they reach only the better off people whose fertility is in any way low, or that even if they do have an impact, it is negligible and does not justify the huge expenditures involved. But, even if family planning programmes in general have not fulfilled the hopes of the early enthusiasts and the governments, the impact of the philosophy seems to be having useful results at a reasonable cost, particularly in the Third World.

Although, only a minority of Third world countries to have officially sponsored family planning programmes aimed at reducing fertility, they however, cover 75 per cent of the Third World's population;[40] and, a further 16 per cent of this population is in countries which give official support to family planning activities. Freedman and Berelson have analysed the family planning programmes by two indicators i.e., 'programme effort' and 'social setting' and measure performance in terms of the proportion of married women of reproduction age (MWRA) using contraceptions as clients of the programme. They find that performance responds positively to both indicators. A more interesting finding is that the strength of the programme has an independent effect, suggesting that an effective family planning programme can make head-way even in relatively adverse socio-economic conditions. They find that a considerable proportion of acceptors are among the disadvantaged socio-economic groups in at least three countries, namely Indonesia, South Korea, and Taiwan. It has also been observed in India that the programme in the State of Maharashtra has won a high percentage of clients among literates than the relatively inefficiently run programme in Bihar.[41]

Another important question is how much and what difference family planning would make to the world if the clients had not entered the family planning programme at all.[42] And most authors attribute some share of fertility decline to family planning programmes. Yet another question is as to how much are the results due to family planning, and how much due to development itself.[43] Experts in the field have also indicated that fertility is more likely to decline when the general level of economic development brings improved material conditions.[44] to the majority of the people in any country.

---

[39] Davis, K., "Population Policy : Will Current Programmes Succeed?", *Science*, Vol. 158 (10 Nov. 1967), pp. 730-739.

[40] Nostman, D., *Population and Family Planning Programmes* A Fact Book, No.2 (7th Ed.), Report on Population, Family Planning, No. 17 Oct. 1975.

[41] Jain, A.K. and Sarma, D.V., "Some Explanations on Factors in Differential use of Family Planning Methods in India", *New York Population Council*, 1974, Mimeo.

However, there seems to be no real conflict as such between the development approach and the family planning approach, as development generally brings its benefits to the great majority of people and not just to a few sections of the society. Keeping in mind the overall problem, the resources and the space, there seems to be a general case for having family planning programmes in any country, even if general acceptance of a need for fertility decline is lacking socially, on the ethical front at least. This is simply on health grounds, i.e., both mothers' and children's health is improved by spacing of births, by avoidance of the very early or very late years of the reproductive period, and by smaller number of births.

The prospects of fertility reduction are limited in a world where people are poor, illiterate, and are subject to high mortality, and where the most urgent need is to find a way out of deprivation itself. But even the deprived may benefit from family planning, and might wish to accept it, if they knew more about it. And, if development takes place, there should be increasing trend of general acceptability on various other grounds.

It is, however, difficult to point out specifically the proportion of fertility decline attributable to family planning or development where both are at work. There are cases where family planning can be shown as a major factor. Mauritius which experienced a decline of 50 per cent in fertility between 1962 and 1973 is an example. All women of lesser fertility were within the programme, and while those outside the programme had considerable higher fertility.[45]

---

[42] Chandrasekharan, C. and Hermalin, A. (Eds.) *Measuring the Effect of Family Planning Programmes on Fertility* (Dolhain Belgium, I4 SSP Editions, 1976).

[43] *IBRD Population Policies, and Economic Development : Select Bibliography*, Institute for Indternational Co-operation, Ontario, University of Ottawa, 1973.

[44] Kocher J.E., *Rural Development : Income Distribution and Fertility Decline*, Occasional Paper, New York, Population Council, 1973.

5.7 Population Growth in India

The implications of the rapid growth of population are more or less the same in every aspect of Indian economic and social life. High percentage of illiteracy, inadequate housing facilities, urban deterioration, rural domination, overcrowding, and pollution, and a general deprivation, disillusionment and dissatisfaction, rule the roost. The family planning programmes have two strands in their history i.e., a concern for health and in particular the health of mothers and children, and a concern for socio-economic effects of a rapid growth in population.

In India, the population has been increasing at about 2.2 per cent. During 1891-1921 the net increase in population was only 12 million or slightly over 5 per cent in 30 years. But during 1921-51 it had increased by 30 per cent and during 1951-71 the increase has been by 53 per cent. As per 1981 census India's population is 685 million, and during 1971-81, and the rate of growth is placed at 2.5 per cent per annum.

In order to control the growth of population, family planning programme has been launched in the year 1952 itself. But, the objective then was merely to open a few clinics for family planning purposes, and it was expected that people would come forward on their own accord. From 1963 onwards the main objective was to educate people on family planning. A separate department for family planning was established in 1966 in the Ministry of Health, and from then onwards family planning programmes seem to have got firm roots in planning itself. In countries like India, the significance of family planning programme relates to the fact that it is not averting the birth, but every averted birth will have "value", and the huge resources i.e., material, monetary and human, being invested in the family planning programme, are justified.

5.8 Population Control Programmes

As regards Andhra Pradesh, the population of Andhra Pradesh has increased gradually from 21.42 million in 1921 to 27.29 in 1941, to 31.11 in 1951, to 35.90 in 1961 and to 43.57 in 1971 and 53.55 in 1981 (Table

---

[45] Brass W. et. al. the Demography of Tropical Africa, Princeton, Princeton University Press, 1968.

5.4). After 1926 (the year of the great divide) population increased rapidly. Decadal variation of population also rose from 12.99 to 23.10 during 1931-1981. Table-1 also reveals that the ratio of urban population to total also increased from 9.65 in 1901 to 23.32 by 1981.

Table 5.5 shows that in the rural areas the general fertility rate is 123.1 in 1984 as against 143.5 in 1976. But there is no reduction in total fertility rate and gross reproduction rate. As far as age-specific fertility rate is concerned, there is significant reduction in the age groups where there is slight reduction. Table 5.6 presents the picture concerning urban areas. Contrary to the situation in rural areas, the general fertility rate is 121.0 in 1984 as against 118.6 in 1976. In the case rural and urban areas also,.there is not much of a change with regard to total fertility rate and gross reproduction rate. Age-specific fertility rate indicates significant reduction in the age groups 30-34 and 35-39, just as in the case of rural areas.

Tables 5.7 and 5.8 show the existing infrastructure and service centres regarding family planning programme. Figures show that the number of centres is more in rural areas and it is a desirable phenomenon. The number of private medical practitioners is more in the relatively rich East Godavari, West Godavari, Krishna and Guntur districts compared to others. Table 5.8 shows that the percentages of achievement has fallen from 91.19 in 1980-81 to 74.68 in 1986-87 (including 1981- 82). Number of equivalent sterilizations almost doubled during that period. Table 5.9 presents targets and achievement pertaining to individual methods during 1980-87. Figures show that the percentage of achievement is higher with regard to sterilisation compared to others. Available information indicates that tubectomies as percentage to total sterilizations show an increasing trend during 1980-87. Table 5.12 presents sterilization by months in Andhra Pradesh during 1985-86 and 1986-87. Table 5.13 reveals the preference for M.T.P.S. and acceptance of contraception after M.T.P. Table 5.14 throws light on the number of couples effectively protected. The couples off protection rate (percentage) rose from 26.11 in 1980-81 to 35.98 in 1986-87. Number of births averted during the year (in lakhs) also increased from 4.63 in 1980-81 to 16.91 in 1986-87. Table 5.15 shows rural urban differences. It is interesting to note that the percentage of rural to total almost remained the same during the decade i.e. 1975-76 to 1985-86. Table 5.16 depicts mean age of vasectomy acceptor as 30.20 in 1980-81 and 28.29 in

1985-86; mean age of tubectomy acceptor as 28.39 in 1980-81 and 27.69 in 1985-86 and mean age of I.U.D. acceptor as 26.99 in 1980-81 and 24.69 in 1985-86. The distribution of acceptors of vasectomy, tubectomy an I.U.D. by number of children in Andhra Pradesh during 1980-86 is presented in Table 5.17. Regarding acceptance for vasectomy, tubectomy 1980-86 is presented in Table 5.17. Regarding acceptance for vasectomy and tubectomy the average number of living children is 3 and for I.U.D. it is 2. Table 5.18 indicates the inter-district performance of family planning.

5.9 Conclusion

It goes unsaid that an integrated approach for controlling population growth comprising such measures as (a) provision of educational facilities which results in the spread of literacy and thereby increases the number of acceptors of family planning; (*b*) rapid expansion of health facilities, particularly in the interior parts of the country, and introduction of measures to raise the nutritional status of the people, so that mortality rate and in particular infant mortality rate declines, which contributes to effective implementation of the family planning programme (because people are for more children due to high infant mortality rate); (*c*) programmes for alleviation of poverty are also important in the sense that children are looked upon as a source of income and security; and lastly, (*d*) emphasis needs to be laid on propaganda regarding the need for population control.

TABLE 5.4

Trends in Population in Andhra Pradesh 1901 — 1981

Year	Persons	Males	Females	Sex Ratio (Females per 1000 Males)	Density of Population per Sq.Km.	Decadal Variation of Population (per cent)	% of Urban Population to total Population
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1901	19,065,921	9,607,091	9,458,830	985	69		9.65
1911	21,447,412	10,769,322	10,678,090	992	78	+12.49	10.09
1921	21,420,448	10,749,220	10,671,228	993	77	_0.13	10.21
1931	24,203,573	12,183,673	12,019,900	987	88	+12.99	11.13
1941	27,289,340	13,782,365	13,506,975	980	99	+12.75	13.43
1951	31,115,259	15,670,565	15,444,694	986	113	+14.02	17.42
1961	35,983,447	18,161,671	17,821,776	981	131	+15.65	17.44
1971	43,502,708	22,008,663	21,494,045	977	157	+20.90	19.31
1981	53,549,673	27,108,922	26,440,751	975	195	+23,10	23.32

TABLE 5.5

Estimated Fertility Indicators and Age-specific Fertility Rates in Rural Areas of Andhra Pradesh 1976 — 1984

Indicator/ Age-Group	1976	1977	1978	1979	1980	1981	1982	1983	1984
General Fertility Rate	142.5	135.3	144.1	131.5	125.2	132.7	132.2	131.6	133.1
Total Fertility Rate	4.6	4.3	4.6	4.2	4.0	4.2	4.2	4.1	4.1
Gross Reproduction Rate	2.2	2.1	2.3	2.1	1.9	2.1	2.1	2.0	2.0
AGE SPECIFIC FERTILITY RATE									
15-19	147.2	143.0	145.5	146.8	125.5	131.1	127.6	138.6	133.0
20-24	237.0	244.6	274.3	240.9	231.9	244.9	245.6	262.5	255.3
25-29	219.3	211.3	218.2	187.0	199.1	206.8	212.5	193.3	200.5
30-34	145.9	144.7	147.0	133.2	119.7	133.1	132.8	119.9	123.6
35-39	91.2	81.2	90.1	75.8	75.6	79.0	70.8	68.7	68.0
40-44	36.7	32.2	36.5	33.7	27.7	31.7	33.2	30.3	32.9
45-49	15.4	7.4	11.6	18.2	12.7	10.3	10.0	15.2	13.0

TABLE 5.6

Estimated Mortality Indicators in Andhra Pradesh in Rural and Urban areas — 1976 — 1984

Indicator	1976	1977	1978	1979	1980	1981	1982	1983	1984
1. STATE									
N.M.R.	81.5	84.5	83.9	69.9	64.8	60.1	56.4	52.5	55.1
Post M.R.	40.5	40.5	33.1	35.8	27.6	26.2	22.8	24.6	22.5
Peri M.R.	73.9	79.3	78.9	66.1	57.9	53.4	49.7	49.2	51.3
S.B.R.	16.5	19.7	17.2	16.6	16.5	13.8	12.9	12.5	13.0
2. RURAL AREAS									
N.M.R.	85.0	94.0	92.2	75.3	72.0	64.9	62.7	58.0	58.3
Post M.R.	42.0	42.0	34.8	38.9	31.0	28.4	23.5	24.7	22.4
Peri M.R.	76.5	85.1	85.6	70.5	63.2	58.0	54.9	52.4	53.6
S.B.R.	15.9	19.5	17.9	17.2	17.6	15.1	14.4	12.0	13.6
3. URBAN AREAS									
N.M.R.	68.1	32.0	39.6	44.2	29.3	36.7	30.1	30.3	42.7
Post M.R.	28.9	30.0	26.4	21.1	10.7	15.0	19.7	24.1	23.0
Peri M.R.	73.7	47.0	42.7	45.0	31.4	30.5	28.0	36.5	42.4
S.B.R.	20.1	20.9	13.6	14.1	11.3	7.3	6.7	14.1	10.5

N.M.R. = Neo-natal Mortality Rate

Peri M.R. = Peri-natal Mortality Rate.

Post M.R. = Post-Natal Mortality Rate.

S.B.R. = Still Birth Rate.

TABLE 5.7

Family Welfare Programme in Andhra Pradesh

1.	State Family Welfare Bureau	1
2.	District Family Welfare Bureau	22
3.	City Family Welfare Bureau	1
4.	Rural Family Welfare Centers	437
5.	Urban Family Welfare Centers	195
6.	No. of Post-partum Programme Units	95
	a) Teaching Hospitals	10
	b) District Hospitals	16
	c) Sub-District Hospitals	27
	d) Other Institutions (2.S.T.)	1
	e) Voluntary Organisations	1
	Total beds in P.P.P. Units	722
7.	Sterilisation bed units	31
	Government Institutions	18
	Voluntary organisations	13
	Total Beds in S.B. Units	514
8.	No. of Centres distributing Oral Pill Cycles	
	Rural	479
	Urban	190
9.	No. of M.T.P. Institutions upto 9/85	370
	a) Rural	34
	b) Urban	336
10.	No. of P.M. Ps involved in Family Welfare Programme.	1,214

TABLE 5.8

Service Centres under Family welfare in Andhra Pradesh as on 31-3-1987

Sl. No.	District	Family Welfare Centres		Post-partum Programme Units		Sterilisation Bed Units		M.T.P. Institu-tions	Private Medical Practi-tioners
		Rural	Urban	No.	Beds	No.	Beds		
1.	Srikakulam	19	4	2	16	-	-	8	16
2.	Vijayanagaram	16	5	1	6	1	12	6	2
3.	Visakhapatnam	27	10	1	32	1	20	4	37
4.	East Godavari	29	11	5	64	4	31	12	185
5.	West Godavari	24	9	2	26	3	49	10	135
6.	Krishna	22	10	3	32	8	133	11	148
7.	Guntur	25	11	4	48	4	66	38	210
8.	Prakasam	23	8	3	32	1	8	8	95
9.	Nellore	19	9	2	26	2	23	30	72
10.	Chittoor	23	6	3	48	5	50	59	35
11.	Cuddapah	19	7	3	32	3	112	9	36
12.	Ananthapur	22	12	2	26	-	-	16	8
13.	Kurnool	24	10	3	34	-	-	12	8
14.	Mahaboobnagar	23	5	2	26	1	10	5	4
15.	Rangareddy	10	3	1	6	-	-	5	10
16.	Hyderabad	-	34	6	138	-	-	85	69
17.	Medak	17	6	2	26	-	-	10	7
18.	Nizamabad	12	5	2	26	-	-	6	21
19.	Adilabad	12	6	1	10	-	-	4	10
20.	Kareemnagar	20	5	3	22	-	-	4	27
21.	Warangal	19	6	1	10	-	-	8	27
22.	Khamman	16	6	2	26	-	-	9	20
23.	Nalgonda	16	7	1	10	-	-	11	32
	TOTAL	437	195	55	722	31	514	370	1214

TABLE 5.9

Targets and Achievements under family welfare in terms of Equivalent Sterilisations in Andhra Pradesh

YEAR	Estimated Population as on 1st October (in '000)	Target	Achievement	Percentage of achievement	No. of Equivalent sterilisations per 1000 Population
1980-81	53,169	276,611	252,228	91.19	4.74
1981-82	54,186	276,611	299,638	108.32	5.53
1982-83	55,204	438,612	369,971	84.35	6.70
1983-84	56,167	607,834	391,121	64.35	6.96
1984-85	57,180	607,778	416,636	68.55	7.28
1985-86	58,193	602,223	497,561	82.62	8.55
1986-87	59,206	681,666	509,057	74.68	8.60

TABLE 5.10

Targets and Achievements under family welfare by individual methods in Andhra Pradesh

YEAR	Sterilisations			I.U.Ds		
	Target	Achievement	% Achievement	Target	Achievement	% Achievement
1980-81	244,100	243,579	99.79	48,000	17,569	36.60
1981-82	244,100	290,434	118.98	48,000	18,056	37.62
1982-83	391,000	357,233	91.36	89,000	24,833	27.90
1983-84	530,000	358,747	67.69	140,000	64,113	45.80
1984-85	530,000	375,004	70.76	140,000	78,299	55.93
1985-86	530,000	434,714	82.02	140,000	125,602	89.72
1986-87	600,000	457,314	76.22	160,000	98,012	61.26

	C. C. Users			O. P.Users		
	Target	Achievement	% Achievement	Target	Achievement	% Achievement
1980-81	232,800	41,682	17.90	32,200	4,293	13.33
1981-82	232,800	44,450	19.09	32,200	6,442	20.01
1982-83	257,000	62,868	24.46	33,000	8,701	26.01
1983-84	371,000	132,658	35.76	95,000	32,700	34.42
1984-85	400,000	180,305	45.08	80,000	49,637	62.05
1985-86	300,000	248,575	82.86	80,000	64,532	80.67
1986-87	350,000	219,928	62.84	80,000	61,688	77.11

TABLE 5.11

Sterilisations in Andhra Pradesh.

Year	Total Sterili-sations	Tubectomics						Tubectomies as percentage to total sterilisations
		Vasectomies	Conven-tional	Lopro scopic	Mini Lap	Vaginal	Total	
1980-81	243,579	54,574					189,005	77.59
1981-82	290,434	40,579	197,639	52,116			249,855	86.03
1982-83	357,233	33,209	215,486	108,538			324,024	90.70
1983-84	358,747	32,893	247,329	68,466	10,059	—	325,854	90.83
1984-85	375,004	30,337	229,916	33,310	81,430	11	344,667	91.91
1985-86	434,714	34,406	369,022	31,286	—	—	400,308	92.09
1986-87	457,314	46,108	N.A.	N.A.	N.A.	N.A.	411,206	89.92

TABLE 5.12

Sterilisations by months in Andhra Pradesh

Month	1985-86		1986-87	
	Number	Percentage to total	Number	Percentage to total
April	27,793	6.39	29,909	6.54
May	38,322	8.82	31,331	6.85
June	27,969	6.43	32,764	7.16
July	33,208	7.64	35,457	7.75
August	33,126	7.62	30,784	6.73
September	39,465	9.08	56,226	12.29
October	35,756	8.22	54,508	11.92
November	37,973	8.73	12,523	2.74
December	36,262	8.34	19,432	4.25
January	36,792	8.46	58,182	12.72
February	39,209	9.02	47,390	10.36
March	48,839	11.23	48,808	10.67
Total	434,714	100.00	457,314	100.00

TABLE 5.13

Medical termination of pregnancies (M.T.P.) performed and acceptance of contraception after M.T.P. in Andhra Pradesh

Year	No. of M.T.P. Institutions.	Total M.T.Ps. Performed	No. of M.T.P.Cases Accepting		Percentage of Sterilisation acceptors to total M.T.Ps.
			Sterilisation	I.U.D	
1980-81	N.A.	14,195	4,318	1,200	30.42
1981-82	N.A.	15,126	4,261	1,478	28.17
1982-83	309	15,403	4,682	1,647	30.40
1983-84	313	13,531	3,968	1,883	29.33
1984-85	317	13,028	4,148	1,100	31.84
1985-86	358	14,023	3,870	1,297	27.60
1986-87	370	10,301	2,894	1,034	28.09

TABLE 5.14

Couple protection rates and number of births averted due to family welfare programme in Andhra Pradesh

Year	Estimated Eligible Couples	No. of Couples affectively protected	Couple protection Rate (Percentage)	No.of Births Averted during the year (in lakhs)
1980-81	97,07,772	25,35,052	26.11	4.63
1981-82	98,91,150	26,66,761	26.96	4.76
1982-83	1,00,74,529	28,53,788	28.33	4.98
1983-84	1,02,57,907	31,07,028	30.29	5.36
1984-85	1,04,41,285	33,64,664	32.22	5.86
1985-86	1,06,24,663	36,81,068	34.65	6.35
1986-87	1,08,08,041	38,88,913	35.98	6.91

Cumulative number of births averted since inception of the programme upto the 74.19 Lakhs end of 1986-87.

TABLE 5.15

Rural / Urban break-up of sterilisations and I.U.D. acceptors in Andhra Pradesh

Year	Rural	Urban	Total	Percentage of Rural to Total @
		STERILISATION ACCEPTORS		
1975-76	1,10,489	54,655	1,65.163*	66.90
1980-81	1,34,632	73,129	2,33,448*	64.80
1985-86	2,88,392	1,46,322	4,34,714	66.34
		I.U.D. ACCEPTORS		
1975-76	9,320	8,442	17,762	52.47
1980-81	7,206	7,538	16,534*	48.87
1985-86	98.210	27,392	1,25,602	78.19

* The total of Rural and Urban do not tally with the totals shown here as the Rural/Urban break-up is not available for some cases.

* The percentages are calculated after excluding the number of cases for which Rural/Urban break-up is not available.

TABLE 5.16

Distribution of acceptors of Vasectomy, Tubectomy and by I.U.D. age of wipe in Andhra Pradesh

Year		Age Group							Total	Mean age of acceptor (Yrs)
		15-19	20-24	25-29	30-34	35-39	40-44	45		
					VASECTOMY ACCEPTORS					
1980-81	No.	429	8279	15996	13969	8417	3573	—	50663	30.20
	%	0.85	16.34	31.57	27.57	16.61	7.06	—	100.00	
1985-86	No.	1150	7116	12876	8967	3542	755	—	34406	28.29
	%	3.34	20.60	37.42	26.06	10.30	2.20	—	100.00	
					TUBECTOMY ACCEPTORS					
1980-81	No.	2715	40073	66354	47230	17721	4067	—	178160	28.39
	%	1.52	23.49	37.24	26.51	9.95	2.29	—	100.00	
1985-86	No.	10460	99381	155961	97712	32303	4491	—	400308	27.69
	%	2.61	24.83	38.96	24.41	8.07	1.12	—	100.00	
					I.U.D. ACCEPTORS					
1980-81	No.	1683	4552	4696	4131	1209	448	—	16719	26.99
	%	10.07	27.23	28.09	24.71	7.23	2.67	—	100.00	
1985-86	No.	23457	45569	37288	16880	4597	611	—	125602	24.69
	%	16.29	36.28	29.69	13.44	3.66	0.64	—	100.00	

TABLE 5.17

Distribution of acceptors of vasectomy, tubectomy and I.U.D. by number of living children in Andhra Pradesh

Year		Number of living children						Total	Average number of living children
		0	1	2	3	4	5		
				VASECTOMY ACCEPTORS					
1980-81	No.	—	578	14169	16497	11597	7798	50699	3.23
	%	—	1.14	27.98	32.58	22.90	15.40	100.00	
1985-86	No.	—	228	11013	13986	6084	3095	34406	3.02
	%	—	0.67	32.01	40.65	17.68	8.99	100.00	
				TUBECTOMY BISECTORS					
1980-81	No.	—	1310	35827	65004	49118	28044	179303	3.37
	%	—	0.73	19.98	36.25	27.39	15.65	100.00	
1985-86	No.	—	1286	102890	164390	93037	38705	400308	3.16
	%	—	0.32	25.70	41.07	23.24	9.67	100.00	
				L.U.D. ACCEPTORS					
1980-81	No.	61	4316	5600	3643	1765	1308	16693	2.40
	%	0.36	25.86	33.55	21.82	10.57	7.84	100.00	
1985-86	No.	8585	35817	40726	25565	10901	4008	125602	2.05
	%	6.84	28.52	32.42	20.35	8.68	3.19	100.00	

TABLE 5.18

Number of couples effectively protected as at the end of 1986-87 in the districts in Andhra Pradesh

S. No	Districts	Estimated eligible couples as on 1-4-1987	No. of couples. effectively protected by all methods	Percentage. of couples effectively protected
1	2	3	4	5
1.	Srikakulam	3,75,675	1,57,020	41.80
2.	Vijayanagaram	3,50,630	1,44,555	41.23
3.	Visakhapatnam	5,26,130	2,04,263	38.82
4.	East Godavari	7,38,039	3,40,227	46.10
5.	West Godavari	5,75,664	2,71,045	47.08
6.	Krishna	6,13,382	2,65,411	43.27
7.	Guntur	6,87,222	2,93,376	42.69
8.	Prakasam	4,67,130	1,67,368	35.83
9.	Nellore	4,07,678	1,47,809	36.26
10.	Chittoor	5,47,629	1,95,305	35.66
11.	Cuddapah	3,89,460	1,32,128	33.93
12.	Anantapur	5,09,234	1,63,039	32.02
13.	Kurnool	4,82,933	1,43,427	29.70
14.	Mahaboobnagar	4,99,384	1,20,755	24.18
15.	Rangareddy	3,38,854	96,742	28.55

(*Table Contd.*)

S. No	Districts	Estimated eligible couples as on 1-4-1987	No. of couples. effectively protected by all methods	Percentage. of couples effectively protected
1	2	3	4	5
16.	Hyderabad	4,73,382	2,07,294	43.79
17.	Medak	3,64,756	91,028	24.96
18.	Nizamabad	3,44,706	1,05,481	30.60
19.	Adilabad	3,35,594	71,763	21.38
20.	Karimnagar	4,93,425	1,43,997	29.18
21.	Warangal	4,64,027	1,49,938	32.31
22.	Khamman	3,59,415	1,36,628	38.01
23.	Nalgonda	4,63,692	1,40,050	30.20
	State	1,08,08,041	38,88,913	35.98

TABLE 5.19

Population, area, sex ratio, density, growth rate etc., in districts 1981 census

Sl. . No.	District	T/ R/ U	Area in Sq. Km	TOTAL POPULATION			Sex Ratio Females per 1000 Males	Density per Sq. Km.	% Growth Rate of Popuation 1971-1981	% of Urban Population to Total Population
				Persons	Males	Females				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	Srikakulam	T	5,837.0	1,959,352	968,585	990,767	1,023	336	10.70	10.89
		R	5,749,3	1,754,948	861,746	884,202	1,026	304	8.69	
		U	87.7	213,404	106,839	106,565	997	2,436	13.43	
2.	Vijayanagaram	T	6,539.0	1,804,196	899,548	904,648	1,006	276	13.50	15.94
		R	6,401.0	1,516,697	755,051	761,646	1,009	237	10.76	
		U	138.0	287,499	144,497	143,002	990	2,083	30.59	
3.	Visakhapatnam	T	11,161.0	2,576,474	1,300,676	1,275,798	981	251	26.56	31.28
		R	10,964.2	1,770,513	887,231	883,282	996	161	16.61	
		U	196.8	805,961	413,445	392,516	949	4,006	55.76	
4.	East Godavari	T	10,807.0	3,701,040	1,857,472	1,843,568	992	342	19.88	22.21
		R	10,559.0	2,878,860	1,443,715	1,435,145	994	273	15.45	
		U	248.0	822,180	413.757	408,423	987	3,317	38.51	
5.	West Godavari	T	7,742.0	2,873,958	1,443,651	1,430,307	991	371	21.04	20.77

(Table Contd.)

	R	7,602.5	2,277,084	1,143,034	1,134,050	992	300	16.54	
	U	139.5	596,874	300,617	296,257	985	4,279	41.98	
6. Krishna	T	8,727.0	3,048,463	1,546,340	1,502,123	971	349	22.25	32.54
	R	8,439.5	2,056,401	1,041,178	1,015,223	975	244	13.36	
	U	287.5	992,062	505,162	486,900	964	3,452	45.99	
7. Guntur	T	11,391.0	3,434,724	1,741,102	1,693,622	973	302	20.75	27.53
	R	11,183.8	2,489,022	1,261,352	1,227,670	973	223	16.64	
	U	207.2	945,702	479,750	465,952	971	4,566	33.08	
8. Prakasam	T	17,626.0	2,329,571	1,177,860	1,151,711	978	132	21.33	15.00
	R	17,425.1	1,980,294	999,157	981,137	1,067	114	15.99	
	U	200.9	349,277	178,703	170,574	955	1,740	64.27	
9. Nellore	T	13,076.0	2,014,879	1,018,716	996,163	978	154	23.78	20.76
	R	12,952.7	1,596,490	805,138	791,352	983	123	16.20	
	U	123.3	418,389	213,578	204,811	959	3,397	64.85	
10. Chittoor	T	15,152.0	2,737,316	1,392,606	1,344,710	966	181	20.72	16.88
	R	14,968.7	2,275,174	1,154,608	1,120,566	971	152	16.08	
	U	183.3	462,142	237,998	224,144	942	2,523	50.31	
11. Cuddapah	T	15,359.0	1,933,304	986,705	946,599	959	126	22.57	19.37
	R	15,171.8	1,558,801	794,652	764,149	962	103	15.16	
	U	187.2	374,503	192,053	182,450	950	2,000	67.46	

(Table Contd.)

12. Anantapur	T	19,130.0	2,548,012	1,309,528	1,238,484	946	133	20.46	20.84
	R	18,793.3	2,017,095	1,034,776	982,319	949	107	15.96	
	U	336.7	530,917	274,752	256,165	932	1,577	41.28	
13. Kurnool	T	17,658.0	2,407,299	1,226,943	1,180,356	962	136	21.45	24.49
	R	17,513.4	1,817,700	923,946	893,754	967	104	15.07	
	U	144.6	589,599	302,997	286,602	946	4,076	46.50	
14. Mahaboobnagar	T	18,432.0	2,444,619	1,232,684	1,211,935	983	133	26.53	10.68
	R	18,278,9	2,177,398	1,093,577	1,083,821	991	119	23.80	
	U	153.1	261,221	139,107	128,114	921	1,746	54.18	
15. Rangareddy	T	7,493.0	1,582,062	808,708	773,354	956	211	42.63	23.83
	R	7,291.8	1,205,065	611,674	593,391	970	165	26.54	
	U	201.2	376,997	197,034	179,963	913	1,873	140.24	
16. Hyderabad	T	217.0	2,260,702	1,177,380	1,083,322	920	10,418	34.36	100.00
17. Medak	T	9,699.0	1,807,139	911,868	895,271	982	186	23.11	11.97
	R	9,608.1	1,590,735	799,751	790,984	989	166	18.45	
	U	90.9	216.404	112,117	104,287	930	2,380	73.14	
18. Nizamabad	T	7,956.0	1,679,683	834,496	845,187	945	211	27.90	19.21
	R	7,849.6	1,357,030	668,645	668,385	1,029	173	22.93	
	U	106.4	322,653	165,851	156,802	941	3,037	54.10	

(Table Contd.)

19. Adilabad	T	16,128.0	1,639,003	827,978	811,025	980	102	27.22	19.34
	R	15,960.7	1,322,020	664,171	657,849	990	83	22.04	
	U	167.3	316,963	163,807	153,176	935	1,897	54.56	
20. Karimnagar	T	11,823.0	2,436,323	1,221,843	1,214,480	994	206	24.05	15.79
	R	11,587.4	2,051,593	1,024,245	1,027,348	1,003	177	17.00	
	U	235.6	384,730	197,598	187,132	947	1,632	82.80	
21. Warangal	T	12,846.0	2,300,295	1,171,482	1,128,813	964	179	22.95	17.24
	R	12,757.8	1,903,821	966,467	937,354	970	149	17.54	
	U	88.2	396,474	205,015	191,459	934	4,499	57.80	
22. Khamman	T	16,029.0	1,751,574	895,013	856,561	957	109	27.86	16.98
	R	15,870.4	1,454,188	742,092	712,096	960	92	22.84	
	U	158.6	297,386	152,921	144,465	945	1,874	60.12	
23. Nalgonda	T	14,240.0	2,279,685	1,157,738	1,121,947	969	160	25.28	11.38
	R	14,093.1	2,020,168	1,021,421	998,747	978	143	18.97	
	U	146.9	259.517	136,317	123,200	904	1,768	113.26	
ANDHRA PRADESH	T	275,068.0	53,549,673	27,108,922	2,644,0751	975	195	23.10	23.32
	R	271,002.1	41,062,097	20,697,627	20,364,470	984	152	16.99	
	U	4,045.9	12,487,576	6,411,295	6,076,281	948	5,087	48.62	

* Hyderabad in only an Urban district.

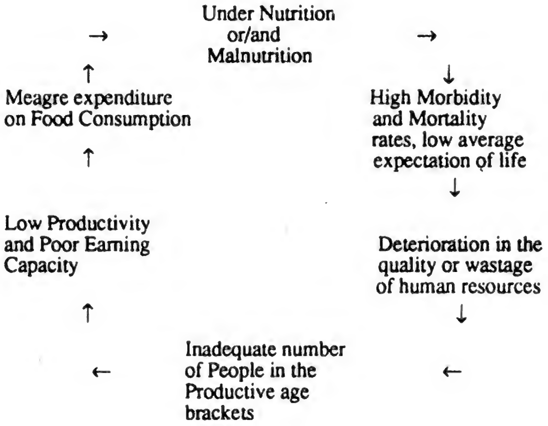
T = Total R = Rural U = Urban

CHAPTER — VI

NUTRITIONAL STATUS AND HEALTH

6.1 Nutritional Status and Development

The context of planning for development and maximising welfare of the people an important question relates to the improvement in the nutritional status of the people. This seems to be crucial for the reason that nutritional status is the key determinant of health status, capacity to learn, work and earn. In developing countries like India, the presence of the vicious circle works as follows.


Under Nutrition or/and Malnutrition
High Morbidity and Mortality rates, low average expectation of life
Deterioration in the quality or wastage of human resources
Inadequate number of People in the Productive age brackets
Low Productivity and Poor Earning Capacity
Meagre expenditure on Food Consumption

This vicious circle needs to be broken in the interests of the development of the economy as well as the promotion of the welfare of the people. As food is the primary requisite of life, and that it determines the nutritional status, which in turn determines the health status of the people, strengthening of the nutritional status therefore, helps break the vicious circle.

Also, it is widely believed that nutrition is the most important factor in influencing human productive capacity, and experience across the globe reinforces the belief, that productivity and food habits of people of different climates and regions of the world are widely different. It is also adequately established that under-nutrition and malnutrition are obstacles to social and economic growth, which account for increased morbidity and mortality. Poor achievement in literacy, education and low productivity, together result in wastage of human resources. The Preamble to the Constitution of F. A. O.[1] recognises the link between nutrition and the expanding economy. Malnutrition is an impediment to national growth as the malnourished often are a drain on its development.[2]

Undernutrition and malnutrition are important causes of high mortality and reduced working life span. A well nourished person is less susceptible to infections, and has the advantage of general resistance to disease and ill health. Working capacity of the well nourished worker increases his earning capacity, which in turn improves the living standards of his dependents. This may also have an effect on both current consumption and the future productivity. Increased working capacity organised through better nutrition programme and better health status promotes employability and leads to better participation of the worker, which ultimately promotes more favourable income distribution in the economy in the long run.

Burton Weisbrod stated that human capital represents the resources which man has utilised to augment his personal productivity.[3] He argues that any type of investment in man will result in the longevity, and investment in malnourished children today can improve the quality of a significant fraction of future labour force which has its positive impact on the growth of the nation. Therefore, an improvement in nutrition can have a continuing current or maintenance effect on the productivity of an active member of the labour force, or it can take the shape of an investment enabling a person to earn a higher future income.[4] The inter-relationship between nutrition and productive capacity has been particularly significant in the developed societies.

---

[1] Food and Agricultural Organization of the United Nations Constitution, 1951, Rules and Regulations, Rome.

[2] Alan D. Berg, 'Nutrition as a National Priority', Lessons from the Indian Emperiment, *American Journal of Clinical Nutrition*, 23, 1970 pp. 1396-1408.

[3] Burton A Weisbrod, 'Investment in Human Capital' *Journal of Human Resources*, Summer, 1966 pp. 118-127.

In developing countries, children between the ages of 1 and 5 years constitute more than 15 percent of the total population which is more than that of the advanced countries. But not all reach the productive age due to high infant and child mortality. In these countries, we find the instance of a broad based pyramid, which is not favourable both from the point of view of nutritional needs and economic development, as it is not only unproductive but also nutritionally most vulnerable. Again, the mortality rate in these countries is as high as 40 percent, resulting in the loss of future productive agents of the economy. [5]Another point in this context is that, poor nutrition before and after pregnancy is the main factor affecting the weight of the child at birth. These low birth weights have been resulting in the increased mortality and mental damage.

As per the estimations of Correa, in India and El Salvador in 1968, the working capacity of the labour force is only 50 percent of the normal level, which disparages the levels of production. Production could be maximised only through optimum allocation of resources. But because of the widespread undernutrition and malnutrition, productivity is low in developing countries.[6]

6.2 Nutritional Status and Health

From the health point of view, inadequacy of diet may affect the man in two ways. First, an undernourished or malnourished person may face health problems leading to illness, which in turn prevent him from effective participation in the productive processes of the economy. And secondly, it influences their choice of what to do with their lives.

---

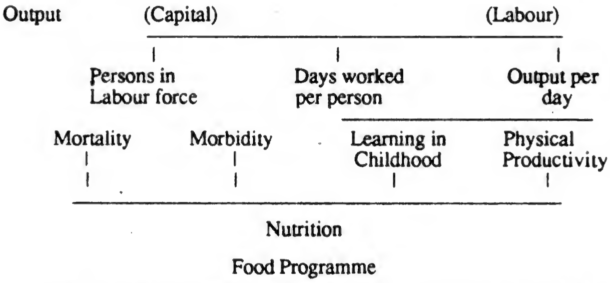
[4] Alan Berg and Robert Muscat, "Nutrition and Economic Development - The View of the Planner", paper prepared for May 3-7, *1971 meeting* of the Secretary General's Panel to formulate a UN Strategy stated.

[5] Gopalan, C., "Nutrition and Economic Development", a paper presented at the *Workshop on Functional Literacy and Family Planning Education*, Hyderabad.

[6] Correa M., 'Nutrition, Working Capacity, Productivity and Economic Growth', paper presented at *Western Hemisphere Nutrition Congress-II, San Juan, August, 1968*

Health and nutrition are closely related though, nutrition among others is one factor affecting the health status of the people. The malnourished person is more prone to disability and in extreme cases, even death. The malnourished is more susceptible to infections and diseases as the resistance is low. Most vulnerable groups of population are more susceptible to infection, generally due to low food intake, loss of appetite, and decreased absorption of food. Thus, an economy where undernutrition and malnutrition are widespread, the health problems may be solved to a great extent by promoting nutrition based diet to those suffering from deficiencies. And, if proper steps are taken to promote the nutritional status of the people, especially the lower income groups, and the vulnerable groups, efficiency and productivity could be geared up.

With growing importance and recognition of the importance of human capital, economists consider that expenditure on food as investment, may promote the skills and abilities and ultimately the earning capacities in future. The following schematic representation of the importance of food programme in human capital may substantiate the point in this regard.[7]



Levinson and Call[8] assigned three roles to nutrition in economic development while analysing the allocation problems relating to nutrition. (1) Improved nutritional Status may increase productivity in the agricultural and industrial sectors of the economy, (2) improved nutritional status may increase the motivation of reproductive age of parents to accept birth control measures as a result of a reduced rate of infant mortality ; and (3) improved nutritional status may increase health directly. The first two are investment oriented and the third is a consumption oriented role. In this connection it is stated that, "if once a person is restored to well being, adequate nutrition (e. g., sufficient iron supply) is a maintenance expenditure and in its absence, the persons would loose some of the income generating capacity he or she has, when nutrition is not adequate."[9]

---

[7] Douglas Wilson, "The Economic Analysis of Malnutrition" in *Nutrition National Development and Planning*, (Ed.) by Cambridge 1973, p. 138.

[8] Levinson, F.J. and Call, D.L., "A Model for Nutrition Planning, Paper presented at the 17th Meeting of the FAO/WHO/UNICEF Protein Advisory Group, New York, May 1970, p. 129.

6.3 Assessment of the Nutritional Status

The twin problems of undernutrition and malnutrition are among the other major hurdles to the growth of the Indian economy. In India, both at the Centre and at the State Government level, attempts are being made to raise the nutritional status of the people. In this context, in the first instance, it is necessary to assess the existing nutritional status so as to implement suitable measures. An important objective in this regard is to see whether there is an improvement in the nutritional status of the people. On the basis of a comparison of the NSS data pertaining to 28th round and 32nd round, we have considered the calorie and protein intake from cereals only, since cereal consumption is the primary source of energy (as 80 percent of the calories are obtained).

6.4 Methodology

This study takes into account the calorie and protein intake using expenditure-group-wise consumption data, and a comparison has been effected for the period 1973-74 and 1977-78, on the basis of the following procedure.

On the basis of the cumulative percentage of households in the expenditure groups, comparable expenditure groups have been identified in the selected years. The calorie and protein value of cereals consumed in these groups has been arrived at by multiplying the calorie values in the sub-groups, with the percentage of sample households in each sub-group, as the weighted factor. Inequalities in the rural and urban areas of Andhra Pradesh in 1973-74 and 1977-78 have been analysed by taking into account expenditure on food and sample households in each group, as expenditure in food is the key element.[10]

---

[9] A. Berg and R. Muscat, *Op. cit.*, p. 607.

6.5 Nutritional Status and Rural and Urban

The Table 6.1 represents the intake of calories from cereals in the rural and urban areas of Andhra Pradesh in 1977-78. The figures indicate a strong link between income and nutritional status. As income rises, nutritional status is also rising, in both rural and urban areas of Andhra Pradesh. In almost all the expenditure groups, nutritional status in the urban areas is comparatively lower than that in the rural areas. This can mostly be attributed to higher cost of living in urban areas. This phenomenon may also be attributed partly to differences in consumption patterns. For example, in rural areas people consume inferior cereals which push up their nutritional status. Table 6.2 throws light on the intake of calories and protein in the rural areas of Andhra Pradesh in the comparable expenditure groups during 1973-74 and 1977-78. The above comparison of the intake in 1973-74 and 1977-78 shows that there is a fall in the nutritional status pertaining to lower income groups (i.e., first three groups) during the period under consideration. But mostly in the higher income groups, there is a trace of enhancement of nutritional status, insignificant though.

The following Table (6.3) focuses upon the intake of calories and protein comparable expenditure groups in the urban areas of Andhra Pradesh during 1973-74 to 1977-78. In the case of urban areas, the picture is different. There is a decline in the nutritional status pertaining to all groups. In the case of lower income groups, the fall in the nutritional status is less significant in urban areas compared to rural areas.

6.6 Nutrition—Past and Present Status

If we compare the situation of nutritional status in 1961-62 with 1973-74, the picture is more discouraging because, the nutritional status had significantly declined. An analysis of the NSS data indicates the average total intake for all the expenditure groups in both the rural and urban areas in both the years, i.e., 1973-72 and 1973-74 is lower, compared to 1961-62. The per capita per day calorie intake in the rural areas of Andhra Pradesh was 1952-82 in 1961-62, 1754.68 in 1972-73 and 1820.97 in 1973-74. In the urban areas, the calorie intake was 1530.17 in 1961-62, 1462.31 in 1972-73 and 1507.38 in 1973-74. Moreover, the range had also increased from 1201.96 to 3175.63 in 1961-62, 667.15 to 3629.89 in 1972-73, and 932.09 to 3961.66 in 1973-74 in the rural areas of Andhra Pradesh ; and the figures indicate considerable increase in inequality in consumption levels. In the case of urban areas of Andhra Pradesh, the range was from 995.03 to 2363.40 in 1961-62, from 546.50 to 1888.34 in 1972-73. These figures also indicate that the range has increased in urban areas too during the period under consideration. Moreover, the range pertaining to all the three years in the urban areas is less than that pertaining to rural areas, which confirms the fact that the intake of calories is higher in the rural areas. In order to measure inequality, the coefficient of variation has been calculated. In the case of rural areas of Andhra Pradesh, the coefficient of variation has increased from 26.50 in 1961-62 to 45.30 in 1972-73 and it is 43.03 in 1973-74 in the rural areas of Andhra Pradesh. In the urban areas of Andhra Pradesh, the coefficient of variation increased from 23.04 in 1961-62 to 28.65 in 1972-73 and 33.09 is 1973-74. The figures, thus indicate that the increase in inequality is greater in the rural areas than in the urban areas.

---

[10] Gopalan, c., Ramasastri, B. V., Balasubrahmanyam, S.C. *Nutritive Value of Indian Foods*, National Institute of Medical Research, Hyderabad, India, 1977.

As income is the key determinant, we have calculated the coefficient of variation to study rural-urban differences in intake during 1973-74 and 1977-78. The fall in the urban areas is much steeper, and that the rural-urban differences have narrowed down. This is a welcome trend though, since there is no increase in the nutritional status of the people, this trend may be attributed to a significant decline in intake in both the areas.

6.7 Conclusion

There has been a decline in the nutritional status of the people of Andhra Pradesh during the period under consideration. This may have considerable adverse effects on the health status of the people, and thereby on their productive efficiency. This decline needs to be averted so as to contribute to human resource development and to promote the health status and welfare of the people. In conclusion, therefore, it may be pointed out that, steps may be taken to increase the nutritional status of the people in terms of a package deal. As income is the key determinant, the policy measures have to promote employment opportunities so as to eliminate poverty, and it is necessary to subsidize various food articles, impose quality controls, and also organise population control programmes.

TABLE-6.1

Intake of Calories From Cereals in the Rural and Urban Areas of Andhra Pradesh in 1977-78

Expenditure Group (Monthly per capita Rs.) 1.	Intake of Calories per capita per day 2.	Rural Intake of Protein per capita per day 3.	Intake of Calories per capita per day 4.	Urban Intake of Protein per capita per day 5.
0-10	105.04	2.52	26.52	0.49
10-15	661.11	16.92	300.94	6.15
15-20	955.48	30.20	461.73	8.17
20-30	128.64	32.17	875.98	18.53
30-35	1428.78	34.49	1079.28	22.53
35-40	1528.67	34.75	1180.98	24.33
40-50	1652.65	36.82	1318.49	27.64
50-60	1783.70	38.78	1410.15	28.64
60-70	1915.17	40.85	1474.87	30.07
70-80	1916.30	41.24	1540.88	31.18
80-100	2077.37	43.86	1898.83	32.63
100-150	2230.23	45.77	1591.20	32.64
150-200	2313.58	46.36	1416.83	33.28
200-250	3009.54	57.80	1720.74	36.09
All Classes	1024.9	39.85	1492.24	27.72

TABLE 6.2

Intake of Calories and Protein in the Comparable Expenditure Groups in the Rural Areas of Andhra Pradesh during 1973-74 -1977-78

Expenditure Group Monthly Per Capita (In Rs.) 1973-74	Per Capita per day Calories	Per Capita per day Protein	Expenditure Group Monthly per Capita (In Rs.) 1977-78	Per Capita per day Calories	Per Capita per day Protein
1	2	3	4	5	6
0-13	932.09	26.55	0-15	283.6	7.14
0-15	925.23	26.00	0-20	548.62	16.23
0-21	1178.11	30.64	0-30	1096.84	27.98
0-24	1205.32	29.71	0-35	1230.42	30.77
0-28	1295.29	31.70	0-40	1340.56	32.16
0-34	1422.00	38.25	0-50	1480.57	34.26
0-43	1598.95	37.14	0-60	1574.25	35.66
0-55	1694.63	38.33	0-80	1687.27	37.34
0-100	1783.13	39.69	0-150	1864.86	39.22
0-150	1811.49	40.08	0-200	1821.59	39.46
All Groups	1820.97	40.04	All Groups	1824.90	39.55

TABLE 6.3

Intake of Calories and Protein in the Comparable Expenditure Groups in the Urban Areas of Andhra Pradesh during 1973-74 - 1977-78

Expenditure Group Monthly per capita (In Rs.) 1973-74	Per capita per day Calorie Intake	Per capita per day Protein Intake	Expenditure Group Monthly per capita (In Rs.)	Per capita per day Calories Intake	Per capita per day Protein Intake
1	2	3	4	5	6
0-24	744.10	15.72	0-30	515.34	10.74
0-28	954.82	20.11	0-35	753.71	15.72
0-34	1143.63	23.97	0-50	1130.11	23.58
0-43	1273.46	26.05	0-60	1240.74	25.58
0-55	1361.80	27.46	0-80	1358.16	27.80
0-75	1459.05	30.17	0-150	1454.08	29.76
0-150	1521.80	30.77	0-200	1450.43	30.06
All Groups	1507.38	36.70	All Groups	1492.24	27.72

CHAPTER — VII

HEALTH POLICY

7.1 Introduction

The Constitution of India envisages the establishment of a new social order based on equality, freedom, and justice consistent with the dignity of the individual. It aims at the elimination of poverty, ignorance, and ill-health, and directs the state to regard the raising of the level of nutrition and the standard of living of its people, and the improvement of public health as among its primary duties. And that the duty of the State in securing the health and strength of workers, men and women, specially ensuring that children are given opportunities and facilities to development in a healthy manner, is a matter of prime importance.

Eversince the introduction of planning in the country, the five year plans have provided the basic frame work within which the States may develop health services, facilities for medical education and research The policy guidelines are also provided through discussions at various joint conferences of the Central Councils of Health and Family Welfare and the National Development Council. Moreover, Central legislation is there to regulate standards of medical education, prevention of food adulteration, maintenance of standards in the manufacture and sale of certified drugs etc. And at a time when the demographic and health picture poses a serious problem, the importance of evolving an appropriate health policy under the auspices of the Government cannot be overemphasized.

7.2 Health Status and Policy

During the past three decades and more, sustained efforts are being made for the promotion of the health care services, which help the economy register considerable progress. But, a great deal remains to be accomplished if we have to be anywhere near the goal of 'Health for All by 2000 AD'. The life expectancy at birth has gone up from 27.4 years from 1941-51 decade to 54.71 years in 1985-86. The infant mortality has come down from 146 per thousand live births during the fifties to 104 by 1984. The mortality rate has declined from 27.4 in 1941-51 to 14.8 in 1984. By the year 1986, the number of hospitals (Government) were 4093 and the number of beds was 394553; the number of private hospitals is 3381, and the number of beds are 141182; and the total number of hospitals was 7474 and the number of beds was 535735. Area served per hospital (sq. kms.) was 439.83 and population served per hospital was 100618. Population served per bed was 1404 and hospital beds per 1000 population was 0.71. The per capita expenditure on health rose from Rs. 7.01 in 1974-75 to Rs. 25.65 by 1984-85. The infrastructure has been strengthened considerably under economic planning. At present, the country has about 83,000 sub-centres, 11,000 primary and subsidiary health centres and 650 community health centres. This infrastructure is supported by curative and specialist care facilities provided by the sub-division/Tahsil/District and teaching hospitals and the regional and national institutes. The programmes initiated and executed over the last three decades have strengthened the health care system in the country and yielded considerable dividends, particularly in the field of communicable diseases. The country was officially declared free from smallpox in 1977. The national malaria eradication programme initiated in 1958 has brought down the incidence of malaria considerably.

A fairly extensive net work of dispensaries hospitals and institutions providing specialized curative care has developed and a large stock of medical and health personnel of various levels has become available. Significant indigenous capacity has been established for the production of drugs and pharmaceuticals, vaccines, sera, hospital equipment etc. The national programme for the control of leprosy, tuberculosis, filaria, and blindness have also helped to reduce mortality and morbidity. National programmes have also been launched for the promotion of maternity and child care, such as immunization of expectant mothers against tetanus, and children against tetanus, whooping cough, diphtheria, tuberculosis, polio etc., besides prophylaxis against Vitamin A and iron deficiencies. Programmes for improving the nutritional status of mothers and children have also been taken up In the field of curative services some of the State Hospitals have built up specialised sophisticated services comparable with facilities available in some of the advanced countries for cardiac diseases, cancer, and neurological and nephrological problems. Measures have also been introduced to correct the regional imbalances prevalent within the system to improve referral services and to augment health care services in the rural areas through the minimum needs programme.

One of the most significant developments during the Sixth Plan was the adoption of the National Health Policy by both Houses of Parliament. Health care programmes were restructured and reoriented towards this policy. Priority was given to extension and expansion of the rural health infrastructure through a network of community health centres and sub-centres on a liberalised population norm. Efforts were made to develop promotive and preventive services along with curative and rehabilitative facilities. High priority was given to the development of primary health care located as close to the people as possible.

7.3 The Key Issues of Policy

All mortality rates, i.e., infant mortality rate, child mortality rate, maternal mortality rate, have all declined, and the incidence of several diseases has gone down. Yet, there is much to be desired in this sector, for the problems relating to health status, and its attainment, are persistent. Severe under- nutrition and malnutrition are pervading, and suitable efforts need to be made to enhance the nutritional status of the people especially children and pregnant women and thereby eliminate nutritional deficiency and related diseases. Communicable and non-communicable diseases have to be brought under effective control. Blindness, Leprosy and Tuberculosis continue to have high rates incidence, and they need to be effectively tackled. It is to be noted with displeasure, that only 31 per cent of the rural population has access to potable water supply and less than one per cent of them enjoy basic sanitation. The prevailing high incidence of disease and mortality basically relates to diarrhoea diseases, specially among infants and children, due to lack of safe drinking water and poor environmental sanitation, and poverty and ignorance.

.In India, the emphasis on health programme and policies has been different between different states. Kerala at the one end of the spectrum, is way ahead and others like Madhya Pradesh and Bihar are lagging behind in the race for "health for all by 2000 AD." Andhra Pradesh occupies a moderate position, with better overall averages in birth rate, death rate, infant mortality and life expectancy. It however, lags behind the others in a few services specific to health protection.

The recent thrust in this area relates to an almost wholesale adoption of health and manpower development policies, and the establishment of curative centres based on the western models, which have been stated as inappropriate to the specific needs of our people and the socio-economic environment. The hospital based disease and cure oriented approach towards the establishment of medical services has provided benefits to the upper echelons of the society, specially to those who live in urban areas. The proliferation of this approach has been at the cost of providing comprehensive primary health care services to the entire population, whether residing in the urban areas or in rural areas. Moreover, the continued over-emphases on curative approach has led to the neglect of the preventive, promotive, public health and rehabilitative aspects of health care. The existing approach instead of increasing awareness and promoting self-reliance, has tended to enhance dependency and weaken the community's capacity to cope with its problems. The prevailing policies concerning education and training of medical and health personnel at various levels has resulted in the development of a cultural gap between the people and the personnel involved in health administration. Various health programmes have failed to involve individuals and families in establishing a self reliant community. Moreover, the planning process has become largely aware of the fact that the ultimate goal of achieving a satisfactory health status for all our people cannot be secured without involving the community in the identification of the health priorities as well as in the implementation of various related programmes.

7.4 Need for New Health Policy

India is a signatory to the Alma Ata Declaration (1978), whereby it is committed to achieve the goal of "Health for All by 2000 A.D." through universal provision of comprehensive primary health care services. In this context, the need for a thorough overhaul of the existing approaches to education and training of medical and health personnel and the reorganization of the health services and their infrastructure has to be stressed. In view of the large variety of inputs into health, it is necessary to secure the complete integration of all plans for health and human development with the overall national socio-economic development process, and particularly in the more closely health related sectors like drugs, pharmaceuticals, agriculture and food production, rural development, education and social welfare, housing, water supply and sanitation, prevention of food adulteration, maintenance of prescribed standards in the manufacture and sale of drugs, and finally the conservation of the environment. An acceptable level of health of all by the year 2000 cannot be achieved by health sector alone. It can only be attained through a strong political will and the coordinated efforts of the health sector and relevant activities of other social and economic development sectors. A holistic approach with closed inter-sectoral and intra-sectoral integration is therefore, found necessary to provide universal comprehensive primary health care services, relevant to actual needs and priorities of the community at a cost which the people can afford, ensuring that the planning and implementation of the various health programmes is through the organised involvement and participation of the community, adequately utilising the services being rendered by private voluntary organizations active in the health sector.

The 20-point programme attributes a very high priority to the promotion of family planning as a people's programme on a voluntary basis. The several other issues which have been in the framework are substantial augmentation and provision of primary health facilities on a universal basis, control of leprosy, T.B., and blindness, acceleration of welfare programmes for women and children, nutrition programmes for pregnant women, nursing mothers and children, especially in the tribal and other backward areas, provision of drinking water facilities to all problem villages, improvements in the housing and environments of the weaker sections of society, increased production of essential food items, integrated rural development, spread of universal elementary education, expansion of the public distribution systems etc. It is in the context of this framework, that the pattern of development of the health services infrastructure in the future needs to be evolved.

Unless success is achieved in securing the small family norm thorough voluntary efforts and through moving towards the goal of population stabilisation, nothing much can be achieved even if we introduce an over all approach to health care and restructure health services. It is therefore necessary that a national population policy has to be evolved, keeping in mind the entire gamut of related issues.

Effective delivery of health care services would depend largely on the nature of education training, and appropriate orientation towards community health of all categories of medical and health personnel and their capacity to function as an integrated team. This requires that the entire basis and approach towards medical and health education at all levels is reviewed in terms of national needs and priorities and the training programmes restructured, so as to produce personnel of various grades of skills and competence.

7.5 Main Features of New Health Policy (1983)

In brief, the health policy enunciates the need for providing primary health care with special emphasis on the preventive, promotive,.and rehabilitative aspects. The method of restructuring of health services is as follows. The policy intends to provide within a phased, time-bound programme, a well dispersed network of comprehensive primary health care services, integrally linked with the extension of health education approach, which takes into account the fact that, a large majority of health functions can be effectively handled and resolved by the people themselves, with the organised support of volunteers, auxiliaries, para-meds and trained multi-purpose workers of various grades. There are a number of private and voluntary organizations active in the health field all over country, whose active help and support has to be effectively enlisted. The effective implementation of the primary health care approach would involve large scale transfer of knowledge, simple skills, and technologies to health volunteers, selected by the communities and enjoying their confidence. The functioning of the front line workers, would require to be related to definitive action-plans for the translation of medical and health knowledge into practical action, involving the use of simple and inexpensive intervention, which can be readily implemented by persons who have undergone short period training. The quality of training for such health workers is of great importance to the success of this approach. the success of such a decentralised primary health care system would depend vitally on organised evolution of individual self reliance and effective community participation, and the support of the health care services at all levels.

The decentralisation of services would require the establishment of a well worked out referral system to provide adequate expertise at various levels of the organizational set up nearest to the community, depending on actual needs and problems of that area. The effective establishment of the referral system would ensure optional utilisation of expertise at the higher levels of the hierarchical structure. This may result in not only improving health care services at the primary levels, but also provide for the timely attention being made available to those in need of urgent specialist care.

The approach to health care, therefore, comprises an integrated package of services seeking to tackle the entire range of health conditions on a broad front. It requires the establishment of a nation-wide chain of sanitary cum epidemilogical stations. The location and functioning of these stations may be between primary and secondary levels of the heirachical structure, depending upon the local situations and other relevant considerations. Each such station would require to have suitably trained staff equipped to identify preventive, promotive, and maternity and other health care services, specific to local situations. The district health organisation should have, as an integral part of its set up, a well organised epidemiological unit to co-ordinate and superintend the functioning of the field stations. Such stations participate in the integrated action-plans may help eradicate and control diseases besides tackling specific local environmental health problems. In the urban agglomerations, the municipal and local authorities should be equipped to perform similar functions, being supported with adequate resources and expertise to deal with local health problems, involving community participation.

The location of curative centres require to be related to the population they serve, i.e., in accordance with density, distances, topography, transport connections etc. These centres should function within the recommended referral system, and the gamut of the several specialities required to deal with the local disease patterns being provided as near to the community as possible.

The concept of domicilliary level and the field camps approach should be utilised to the fullest extend, to reduce the pressures on these centres, with particular concentration on the control and eradication of blindness, leprosy, tuberculosis etc. For the maximum utilisation of available resources, new and additional curative centres should be established only in exceptional cases and the basic attempt must be towards the upgradation of existing facilities at selected locations, the guiding principle being to provide specialist services as near to the beneficiaries as many be possible with a well planned network.

Expenditure should be reduced through the fullest possible use of cheap locally available building materials, with appropriate architectural designs so as to be cost effective in the purchase of machinery and equipment and avoid duplication of such acquisition, and ensure the proper upkeep of all bio-medical equipment so as to secure their maximum utilisation.

In order to economise on governmental expenditures, and to fully harness untapped resources, programme may have to be related to local requirements and potential, so as to encourage the establishment of practice by private medical people. Increased investments under the auspices of the non-governmental agencies for establishing curative centres may have to be encouraged with government logistical support. The I.D.B.I. has recently amended its guidelines in order to provide finance by way of seed capital, or term loan, to establish hospital and nursing projects, etc., by recognising "hospitals" as "industry" At state level, the APSFC monitors this aspect.

While the major focus of attention in restructuring the existing governmental organisations relates to the strengthening of primary health care and public health services within the integrated referral system, planned attention requires to be devoted to the establishment of centres equipped to provide speciality, multi-speciality and super speciality services, through a well dispersed network of centres to ensure that the present and future requirements of specialist treatment are adequately available at various levels within the country. To reduce government expenditures in the establishment of such centres, efforts should be made to encourage private investments, so that the affluent sections are served by the private sector in the paying clinics. Appropriate dispersal of centres is needed to remove existing regional imbalances and to provide services within the reach of all rural and urban areas.

Special programmes may have to be launched to provide mental health care as well as medical care and the physical and social rehabilitation of those who are mentally retarded, deaf, dumb etc. and the aged. Programmes for the prevention of various disabilities also are emphasised. In the establishment of reorganised services, top priority must be given to provide service to the tribal and other backward areas. Also, these services have to be poised to cover epidemics and endemics, as well as the vulnerable sections of the society. In the reorganised health service scheme, efforts should be made to ensure adequate mobility of personnel at all levels of functioning.

It would be a stupendous venture if we have to evolve national and regional strategies so as to ensure adequate nutrition for all segments of the population through a well developed distribution system, specially in rural areas and urban slums, but it would be a precondition to all health care systems. The basic input of the average human kind is food, and it should be available to every person in accordance with his physical needs. Low cost, processed and ready-to-eat foods, should be produced and made available. The overall strategy involves the enhancement of purchasing power of the poorest sections of the community. All rural schemes which promote employment may have to be revitalised. The problems of communities affected by chronic nutritional disorders should be tackled through special schemes including the organisation of supplementary feeding programmes directed to vulnerable sections of the society and they should be integrated with health care activities. In this regard, the efforts of international organizations like WHO, UNICEF should be strengthened and improved. Effective steps need to be taken to check and prevent the adulteration and contamination of foods at the various stages of their production, processing, storage, transport, and distribution An important aspect of administration is to evolve suitable measures to ensure the supply of all drugs, and check the manufacture and sale of spurious and substandard drugs. The provision of safe drinking water and the sanitary disposal of water, human and animal wastes both in urban and rural areas must constitute an item of the integrated package. The enormous backlog in the provision of these services to the rural population and in the urban agglomerations must be made up, on the most urgent basis

While preventive and promotive public health services are established, and the curative services reorganised, it would be necessary to ensure against the haphazard exploitation of resources which cause ecological disturbances leading to health hazards. Planning of health, therefore, needs be made in adequate consultation with the central and the state government authorities. Also, it is necessary to ensure that the present and future industrial and urban development plans are properly reviewed to ensure against congestion, unchecked release of noxious emissions, and the pollution of air and water. Location of manufacturing units must be regulated through legal measures, and in consultation with all competent governmental authorities.

Immunization programmes aimed against preventable communicable diseases, may have to be planned so as to reduce mortality and morbidity. High birth rates lead to high infant mortality which in turn increases the desire to have more children. Hence the need for programmes for the improvement of maternal and child health service with particular focus on less privileged sections of the society. These programmes require to be decentralised to the extend possible so as to serve all the beneficiaries. Comprehensive programmes for providing ante- natal, intra-natal, pre-natal and post-natal care have to be organised.

Organised school health services integrally linked with the general preventive and curative service would require to be established within the limited time frame. It is essential to introduce schemes to prevent and treat diseases and injuries arising from occupational hazards, not only in the industrial sector but also in the agricultural sector. The Employees State Insurance Act requires to be amended to ensure coordination of efforts with the general health services. The Centre and the States have to adopt an organised approach to occupational health services for reducing morbidity, and promote better health.

It must, however, be emphasized that all the above mentioned measures would meet with success only when nation-wide health education programmes are launched. These should be backed by appropriate communication strategies so as to provide health information in easily understandable form to motivate the development of an attitude for healthy living. The public health education programme should be supplemented by health nutrition and population education programmes in all educational institutions at various levels. Efforts must be made to promote universal education, specially adult, and family education, without which, the efforts to organise preventive and promotive health activities, family planning and improved maternal and child care, cannot bear fruit.

There is also a great need for the development of an effective health information and health education system. A nation-wide organisational set up should be established to procure essential health information. Such information is needed in view of not only planning and decision making, but also to provide timely warning about emerging health problems and for reviewing, monitoring, and evaluating the various on going health programmes. The building up of a well conceived health information system is also necessary for assessing medical and health manpower requirements, and for taking timely decisions. This requires grass-root participation and involvement of the enlightened segments of the population, viz., health-educators, voluntary organizations, and philanthropists, and others.

The country has already built a sound technological and manufacturing capability in the field of drugs, vaccines, bio- medical equipments etc. But the know-how requires to be adequately exploited to increase the production of essential and life saving drugs and vaccines of superior quality to meet national requirement, specially in regard to the national programmes to combat malaria, T.B., Leprosy, blindness and diseases relating to diarrhoea. Attempts must be made to produce drugs at low cost, and efforts may be launched to establish herbal gardens for producing herbal drugs of quality and make them available.

There is also a need for constant updating of knowledge, skills, and techniques of the state of the arts and technology in the field and all medical practitioners (private, governmental and voluntary), by regular conduct of seminars, workshops, symposia and organized training programmes, through continuing Medical Education Schemes. Practitioners of Modern medical system heavily rely on diagnostic aids involving extensive use of costly and sophisticated bio-medical equipment. These equipments require to be financed and subsidised so that the much desired technological transfer takes place in a priority sector. It would also be in the fitness of things if a proper health insurance scheme is organised on a state wide basis for mobilising additional resources for health promotion, and ensuring that the community shares the cost of services in keeping with its paying capacity.

7.6 Research and Administrative Coordination

The existing legislation needs purposeful review. Medical science is expanding at a very rapid rate. In order to maintain our country's lead in this regard, and to attain self sufficiency and obtain the requisite competence in the future, it is necessary to have an organised programme for the building up and extension of fundamental and basic research in the field of bio- medical and allied sciences. The basic objective of medical research, and the ultimate test of its utility would involve the translation of available know-how into simple lowcost, easily applicable and appropriate technologies suited to local conditions, thus placing the latest achievements within the reach of health personnel and to the front line health workers, in the remotest corners of the country. Besides devotion to basic fundamental research, high priority must be assigned to applied and operational research including action oriented research for continuously improving cost effective health services. Priorities need to be identified and laid down in collaboration with social scientists, planners and decision makers and the public. As equally high priority should be given to essential equipment required for extensive use, and to promote and enlarge the resources to be devoted to nutritional research and thereby improve the health status of the community. Both health and human development must form an integral component of the over all socio-economic developmental process in the country. Hence the need for proper coordination between health and other closely related sectors. There is a great need for setting up machinery at the Centre and in the States for securing inter-sectoral coordination of the various efforts in the field of health, family planning, medical education and research, drugs and pharmaceuticals, agriculture and food, water supply and drainage, housing, education and social welfare and rural development. Committees need to be appointed for evaluation and coordination and they should try to resolve bottlenecks and bring about shifts in contents and priorities of programmes as may appear necessary to achieve the overall objectives. At the micro level, arrangements must be made to coordinate health and all other developmental activities, under the integrated rural development programme.

7.7 Monitoring and Review

The need for monitoring and periodical review of programme implementation cannot be overstressed. For this purpose it is necessary to identify the base line situation and to evolve a phased programme for the achievement of short and long term objectives in the various sectors of activity. The current level of achievement as well as the broad goals in respect of certain basic health and family welfare are expressed in the Table 7.1. It is the concern of the Central and the State Governments to work out related objectives and specific targets of achievement, in the light of these goals. Table 7.2 depicts the present health system infrastructure, with the help of which the goals are to be attained.

7.8 The Plan Strategy

As the nation is commitued to the goal of "health for all by 2000 AD.", in the content of over all health development programme, emphasis is to be laid on preventive and promotive aspects and on organising effective and efficient health services which are comprehensive in nature, and at the same time be easily and widely available and freely accessible to the people. The broad and basic approaches to restructure health services will have to be :

(1) organised support of volunteers, auxiliaries, paramedical and multi-purpose workers,

(2) selection and training of community health volunteers,

(3) building of self-reliance and effective community participation,

(4) establishments of a well worked out referral system,

(5) concept of domicilliary and field camp approach,

(6) devising planned programmes to reduce Governmental expenditure and fully utilising untapped resources,

(7) priority to unprivileged and vulnerable sections of society,

(8) ensuring adequate mobility of personnel of all levels of functioning.

Primary health care has been accepted as the main instrument of action. The main thrust will be in the following areas.

(a) The minimum needs programme will continue to be the basis for the promotion of primary health measures, with greater emphasis on improvement in the quality of services rendered. Emphasis is to be levied on the provision of infrastructural facilities and establishment of facilities where they are not available.

(b) As health programmes suffer due to poor inter-sectoral coordination and cooperation, effective steps are to be taken for coordination and coupling of health and related services and activities, i.e., nutrition, safe drinking water supply, and sanitation, housing, education, information and communication, and social welfare have to be made part of the package for achievement of the goals of health for all by 2000 A.D.

(c) The community's participation and people's involvement in the programme is to be given greater importance. Thus, programmes involving active participation of voluntary organisations and a massive health education movement would have to be accorded priority.

(d) With regard to health and family planning services, qualitative improvements are to be achieved. Education and training programmes need to be made more need based and community oriented. As management and supervision are vulnerable areas, management information systems are to be developed. Due attention is to be paid to the adequate provision of essential drugs, vaccines, and sera. In this regard pricing and distribution and universal accessibility, availability and affordability are to be stressed.

(e) Urban health services, school health services and mental and dental health services are also to be stressed to ensure a comprehensive coverage.

(f) Effective steps are to be taken to control communicable diseases at all levels with strict adherence to sharing of cost by the State Governments. The National Goitre Control Programme is to be given priority as it yields quick and complete success.

(g) Appropriate measures are to be taken for the control of non-communicable diseases like Cancer, Coronary heart diseases, hypertension, diabetes, accidents, etc., which are the major health problems. Development of specialities and super specialities is to be pursued with proper attention to regional distribution.

(h) It is felt that training and education of doctors and paramedical personnel needs a thorough overhaul. Teaching and learning are to be related to the health problems of the people. Medical training is to be need based, problem-centred, and community oriented. Medical education is a life long process and continuing education is an area that needs considerable strengthening by a proper selection, training, placement, promotion and posting policy. Health management experience and expertise for all categories of health and health related managerial jobs will have to be ensured.

(i) It is stated that medical research of special relevance to the common health problems of the people would be pursued. Evaluation of intervention and technologies will be given greater emphasis and priority. Modern biology and bio- technology will receive special attention to find more effective and acceptable tools to fight several of the endemic diseases. Research efforts in the area of immunological approaches to fertility control, immunodiagonostics, operational research, and effective utilisation of electronics and computers in the health programmes, will have to be pursued.

(j) The Indian systems of medicine lend themselves to better standardisation, integration, and wider application, particularly in the national health programme. Teaching, training, and research, and service activities in the development of the Indian systems of medicine would need to be pursued vigorously. Extension planning in this sector is deemed essential.

(k) For attaining the long term goals, a suitable strategy of special programmes and incentives oriented towards eligible couples, particularly in the younger age groups are to be evolved. Incentives like - (i) giving cash awards for one daughter/two daughters sterilization or one son sterilization or for promotion of one child norm, (ii) making reservations (like SC/ST) for one child families in education/employment etc. and (iii) provision of permanent free health card/check up systems for one child for an effective disease-free long life, should also be thought of. Inter-sectoral co-ordination and cooperation and the involvement of voluntary agencies in the programme will be necessary in this programme to an ever greater extent than health. Community participation is essential for the voluntary acceptance of the family welfare programme. Identification and active involvement of non-governmental organisations and local leaders in the programmes are important aspects of efforts in this field. For the achievement of the 'two child norm' it is essential that the child survival rates be raised. Various steps are to be taken to reduce maternal mortality.

(1) Above all, strict discipline has to be maintained in hospitals managed by Government, by way of total banning of private medical practice by Government doctors (by suitably compensating them through non-practising allowance), abolition of all malpractices in maintenance of stores/depots in hospitals, and corruption in hospitals at all levels, has to be thoroughly checked and curbed for effective provision of medicare facilities to the grass-root poverty stricken masses.

The efficiency and effectiveness of programme infrastructure will have to be improved, and within the overall framework, greater flexibility will have to be provided to each State with regard to programme inputs. Special information education and communication campaigns are to be organised to remove bias against female children. Efforts will have to be made to enforce law relating to the minimum age of marriage.

States which have the lowest couple protection rate will need special attention. Similarly within the states, areas and groups with lower acceptance rate will have to be given particular attention. The programme would have to have special focus on slums, backward and tribal areas as well as the rural poor. Involvement of voluntary organisations, women's groups and youth groups is stressed. Although the network of the programme services has been expanded, it has not yet reached close enough to the people. The emphasis therefore is to be on its acceptability.

The approach of the present health policy in India, is therefore, essentially macro economic in its outlook, and the framework has to help achieve the goals stated. This requires, however, the coordination of all levels of the government, and in this regard, it is essential to stress 'flexibility' of approach between the governments, and realisation of the goals expeditiously at the regional and sub-regional levels so as to accomplish the task.

TABLE 7.1

Goals for Health and Family Welfare Programmes

Sl. No. 1.	Indicator 2.	Current level 3.	1985 4.	GOALS	
				1990 5.	2000 6.
1.	Infant mortality rate	Rural 136 (1978)	122		
		Urban 70 (1978)	60		
		Total 125 (1978)	106	87 below	60
		67 (1976)		30-35	
2.	Crude death rate	Around 14	12	10.4	9.0
3.	Pre-school child (1-5) years) mortality	24 (1976- 77)	20-24	15.20	10
4.	Maternal mortality rate	4-5 (1976)	3-4	2-3 below	2
5.	Life expectancy at birth (yrs)	Male. 52.6 (1976- 81)	55.1	57.6	64
6.	Babies with birth weight below 2500 gms (percentage)	30	25	18	10
7.	Crude birth rate	Around 35	31	27.0	21.0
8.	Effective couple protection (Percentage)	23.6 (March 82)	37.0	42.0	60.0
9.	Net Reproduction Rate (NRR)	1.48 (1981)	1.34	1.17	1.00
10.	Growth rate (annual)	2.24 (1971-81)	1.90	1.66	1.20

Sl. No. 1.	Indicator 2.	Current level 3.	1985 4.	GOALS 1990 5.	GOALS 2000 6.
11.	Family size	4.4 (1975)	3.8		2.3
12.	Pregnant mothers receiving ante-natal (%)	40.50	50.60	60.75	1.00
13.	Deliveries by trained attendents (%)	30.35	50	80	100
14.	Immunisation status (%) coverage				
	TT for pregnant women	20	60	100	100
	TT for school children 10 years	40	100	100	
	16 years	20	60	100	100
	DPT (Children below 3 years)	25	70	85	85
	Polio (infants)	5	50	70	85
	BOG (Infants)	65	70	80	85
	DT (new school entrants 5-6 years)	20	80	85	85
	Typhoid (new school entrants 5-6 years)	2	70	85	85
15.	Leprosy-percentage of arrested cases out of those detected	20	40	60	80
16.	T.B. — percentage of disease arrested cases out of those detected	50	60	75	90
17.	Blindness incidence of (%)	1.4	1	0.7	0.3

CHAPTER — VIII

HEALTH FOR ALL BY 2000 A.D.

In 1978, at the international conference on primary health care (6-12 September) organised by the Health Assembly of W.H.O., at Alma Ata, USSR, it was unanimously decided by 134 Governments, including India and 67 representatives of U. N. specialised agencies, and non-governmental organizations, that primary health care for all, is essential and that it has to be an integral part of social development in the spirit of social equity and justice. India is a signatory to the resolution and is committed to the attainment of the goal of health for all by 2000 AD through universal provision of comprehensive primary health care service.

8.1 Health Goals

Human resources of a country are undoubtedly the most precious endowment. Health care is intrinsic to the well-being of the people and has to be promoted as an economic value, and as a means to reduce absenteeism, debility, disability, and raise efficiency, productivity and finally the income earning capacity. These aspects of the goal have certain implications to the Indian economy. The health status of the millions of people in the world today causes considerable concern, and the story of the developing countries is particularly pathetic. On the global level, it calls for a new approach to close the gap between 'haves' and 'have nots' through equitable distribution of health resources, transfer of health technologies, upgradation of skills and information systems, strengthening of infrastructure so as to ensure the level of health for all the citizens of the world, and enable them lead a socially meaningful and economically productive life. It is in this context the concept of primary health care i.e., access for all to minimum health care, close to their homes so as to enable all people lead a healthy life, is stressed.

As per WHO's definition, the term health implies a state of complete physical and mental well being not merely the absence of disease or infirmity. It implies that the level of health for any one depends not only on the health facilities, but embraces the provision of facilities and creation of environment and social mileu that enables a person lead a productive life. On account of the multi sectoral nature of health development, development in the health-related sectors such as education, nutrition, housing, water supply, infrastructure development, communication, agriculture and environment, which have a profound bearing on the working conditions, per capita income level, are all of immense importance. Substantial improvement in the personal, family, social, and national environment and hygiene and cleanliness, go a long way in reducing the incidence of sickness. People need to be taught, trained and motivated to live in harmony with the community in general

It is a recognised fact that prevention of sickness and calamity are in conformity with the economy and is also cost-effective, looked at from the point of the burden on the society. In developing economies, with an overwhelmingly high rural population, high illiteracy, low income levels, poor nutritional standards, unhygeinic surroundings, lack of suitable drinking water, inadequate health cover, people are exposed and are susceptible to indisposition and sickness. Thus, there is a great need for public health revolution coupled with effective and sustained sanitation drives, and the need to impart awareness about maintaining the necessary environment, which will prevent morbidity and mortality in general.

A number of health indicators and parameters are generally being used for assessing the health status of people, and an important indicator is the Infant Mortality Rate. The IMR not only gives a picture of the health status and efficiency of the health infrastructure but also of the quality of services provided. At present, the IMR in India is 104 per 1000 live births. It is envisaged that its reduction to below 60 by 2000 AD could be brought about by improving the ante-natal, intra-natal, neo-natal and post-natal services, and proper child care and better environmental sanitation. In a vast country like India, it is difficult to provide institutional delivery facilities to every expectant mother and it is much more stupendous a task to provide services of trained nurses, and midwives for every domicillary delivery. Against this background, an innovative scheme of training of traditional birth attendants was designed, according to which those who are practising mid-wifery by profession, are given training to conduct deliveries, and are supplied free with modern midwifery kits at the end of the training. About 75 per cent of deliveries in the country are being conducted by trained and competent professionals.

This requires to be supplemented by education relating to nutrition, prevention of nutritional anaemia among pregnant women, by doses of iron and folic acid intakes, and immunization against tetanus to reduce I.M.R., and improving the quality of ante-natal and post-natal care. These measures may make it possible to achieve the objective of bringing down the I.M.R. to below 60 during the next decade.

The pre-school child mortality ratio which is 20 per 1000 is mainly due to the ravages of diseases such as diarrhoeal and respiratory infections, and others like measles, diphtheria and T.B. This has to be brought down to 10 per thousand by the year 2000 AD and is sought to be achieved through immunization and other suitable measures.

The MMR (Maternal Mortality Rate) which is about 4 per thousand births should be brought down to below 2 by the target date, and this is supposed to be achieved through better maternal services which include pre-natal, natal and post-natal care. One of the key factors for bringing down the MMR is the identification of risk factors and providing timely institutional services to those in whom such risk factors have been identified.

Life expectancy at birth which is about 35 years now is to be increased to 64 years by 2000 AD. This depends not only on the quality of health services of a country but is influenced by several socio-economic, cultural, and genetic factors as also the standard of living in this country. With the improvement in the health services infrastructure and improvement achieved leading to the implementation of several anti-poverty and developmental programmes, which are designed to increase the per capita income, and due to the implementation of the various national health programmes, this objective may be said to be within the realm of realization.

The Crude Birth Rate (CBR) in India is about 31 per thousand and now and this is supposed to be reduced to 21 per thousand by 2000 AD. The most important single factor for achieving this objective is the implementation of family welfare programmes which is possible only when the programme becomes a people's programme. The other demographic determinants of CBR are female literacy, socio-economic status, female employment, and adoption of small family norm, by all those in child bearing age group. This is closely related with effective Couple Protection Rate (CPR) which at present is 37 per cent and this requires to be increased to 60 per cent by 2000 AD. It is also dependent on the achievement of the Net Reproduction Rate (NRR) which at present is 1.34, which represents the number of female children per one eligible couple. The annual population growth rate at present is 1.90 per cent which needs be brought down to 1.20 per cent and the overall family size from 3.8 to 2.3. At present, the percentage of pregnant mothers receiving ante-natal care is only around 50 to 60 per cent. It is essential that 100 per cent of expectant mothers should receive ante-natal care if 'Health for All' is to be made a reality. By the same count, the proportion of deliveries by trained birth attendants which is now around 50 per cent requires to be made cent per cent.

In order to reduce the morbidity and mortality rates, infectious diseases, which are preventable by immunization, for example, diseases like tetanus, whooping cough, poliomyelitis, TB and measles, the Central Government sets targets ranging from 70 to 100 per cent immunization, through EPI (Expanded Programme of Immunization) and UPI (Universal Programme of Immunization by the year 1990). BCG vaccine DPT (Diphtheria, Polio, whooping cough, Tetanus) vaccine T.B. vaccine, measles vaccine, typhoid and cholera vaccine could be administered to the high risk prone and vulnerable groups through systematic programmes and their effective surveillance. Through the effective implementation of National Health Programmes like National Programme for Control of Blindness (NPCB), National Tuberculosis Control Programme, substantial reduction in the incidence of these diseases and of blindness is sought to be brought about by the year 2000 AD. With the phased expansion of implementation of the Multidrug Regimen Treatment (MRT) under National Leprosy Control Programme on the national level, spectacular progress has been achieved in several districts of the State in the reduction of the prevalence of disease to levels where it ceases to be a public health problem. A well co-ordinated programme has to be launched to provide mental health care as well as effective medical treatment to achieve physical and social rehabilitation of those who are mentally retarded, physically disabled, and aged.

8.2 Measures for Achieving Health goals.

Experience has shown that hospital based—disease — and —cure—oriented—approach, towards establishment of medical services has provided benefits only to those in the urban areas mostly, and also has failed to achieve the goals in the field of health. Hence the shift in emphasis to preventive, promotive, public health and rehabilitative aspects of the health care. Aspects like nutrition — Prevention of food adulteration maintenance of the quality of drugs, water supply and sanitation, environmental protection maternal and child health services, immunization, school health programme, occupational health — promoting and medicare schemes, in various sectors require to be geared up. And, simple and affordable vaccine drops and medicines for all common diseases, bio-medical research, clinical problem, and research have to receive greater attention. The delivery systems, also require to be properly evaluated periodically. The question of quality control, and supervision have to be given importance in all schemes of evaluation. At the same time, cost-effective systems of medicine like Ayurveda, Unani, Siddha, Homeopathy, and others need to be encouraged. In this regard, the importance of naturopathy and the development of knowledge of nutritional levels based on local resources has to be stressed. A time-bound programme with inter-sectoral cooperation, and synchronisation of schemes and activities, for the elimination of region-specific local diseases is needed.

Synergic and dedicated efforts involving all the sectors, governmental agencies, voluntary organisations and the people, would go a long way in effectively tackling promotive, preventive, curative, rehabilitative, and emergency medicare, and in translating the goal of health for all by 2000 AD as a realisable reality.

8.3 Andhra Pradesh and Health Goals

While the expectations of reaching the set goals are geared up, it is necessary to keep in mind, that Andhra Pradesh has been perpetually a backward State, compared to national averages and the neighbouring States, in the field of medical and health. It is therefore, necessary that under economic planning, primary health care has to be given sufficient prominence. The approach of the State Government for achieving the 'goal of health for all by 2000 AD' under health sector during the Seventh Plan has been as follows :

(*i*) In the field of modern medicine, it was proposed to ensure that all the erstwhile taluk hospitals are equipped with 30 bed facilities during the Plan period. This would also imply the establishment of mandal hospitals, where at present there are no such hospitals, apart from upgrading a number of other similar hospitals to bring them up to the standard of 30 beds.

(*ii*) In the erstwhile taluk/mandal hospitals as well as industrial headquarters hospitals appropriate investments are to be made to fill the gaps relating to equipment, infrastructure, and other facilities. The district headquarters hospitals were also proposed to be upgraded to have a minimum of 300 beds. In terms of specialities, also, the ENT and anaesthesia units were proposed to be added to every district headquarter hospitals, so that each hospital is fully equipped with all the eight specialities.

(*iii*) It was proposed to establish PHCs or dispensaries during 1985-86 itself in all mandals, which did not have medical facilities.

(*iv*) The establishment of super specialities in all the teaching hospitals with the assistance of institutional finances were also proposed.

(*v*) In the field of Indian medicine to fulfill the requirements of Central Council of Indian Medicine and Homeopathy, provision was made for additional departments.

(*vi*) The need to have regional offices was also felt as there was no district head in the case of Indian Medicine Department.

(*vii*) It was proposed to provide one-allopatic dispensaries in all mandals during the Plan period.

(*viii*) To have a check on drugs and to minimise spurious and substandard drugs, which are injurious to health, it was proposed to strengthen the drug control administration.

(*ix*) In terms of rural health facilities, the programme of upgradation of all the existing primary health centres into community health centres by providing 30 beds at each centre was proposed.

(*x*) Apart from expending facilities, in the IPM new activities like establishment of oresol production unit, regional public health referal laboratories, etc. is contemplated.

(*xi*) And, it was proposed to introduce health card system to cover all the school going children.

8.4 Conclusion.

The empirical analysis made in respect of health status generally lead to the following conclusions in both rural and urban areas of Andhra Pradesh. Death rates have declined over time, and mortality is comparatively lower in rural areas compared to urban areas, even though health facilities are more in urban areas, which may be attributed to better nutritional status. The nutritional status of the rural people seems to be higher due to a variety of reasons like the consumption of inferior cereals which have greater nutritional value, low cost of living, low percentage of non-food expenditure to the total expenditure, and such reasons.

Morbidity statistics show that there has been a decline in the incidence of sickness from the mid 1970s which is a welcome feature, in spite of the fact that the level of morbidity has been high. As regards rural-urban differences, while mortality is lower, morbidity is higher in rural areas compared to urban areas. High morbidity in rural areas may be due to lack of adequate health facilities and also perhaps due to non-utilisation of existing health facilities. On the other hand, in urban areas, the incidence of sickness is lower due to availability and effective utilization of health facilities.

The analysis relating to health facilities shows that the existing facilities are generally inadequate, while the ideal doctor-population ratio is 1:3500, it has been only 1:9568 in 1986. The ideal bed population ratio is 1:1000 while the bed population ratio is 1:2046 in 1986. Nutritional status in generally considered an important determinant of health status. The quantity and quality of food we eat determines our nutritional status which in turn determines the health status. Under-nutrition and malnutrition are the two important causes for mortality and morbidity. Available empirical analysis of nutritional status of the people of Andhra Pradesh during 1973-74 and 1977-78 indicates that there has been a general decline in the nutritional status. There seems to be a strong relationship between income and nutritional status. In almost all the expenditure groups, the nutritional status in the urban areas in lower than that in the rural areas. The fall in the nutritional status relating to urban areas in much steeper.

The targets of health for all by 2000 AD are as follows :

		Target to be Achieved
1.	Birth rate reduction (per 1000 population)	21
2.	Death rate reduction (per 1000 population)	9
3.	Infant mortality reduction (per 1000 live births)	60 per cent
4.	Couples to be protected under family welfare	60 per cent
5.	Life expectancy (to be increased from 50 years)	60
6.	Villages to be provided with protected water supply system	2.3 lakhs

The attainment of all these goals relating to health for all by 2000 AD may be said to be a formidable task. However, the problem needs to be tackled from several angles. Curative and preventive measures must be made adequately. We are all aware of the inadequacy of health facilities in Andhra Pradesh. Therefore, efforts must be made to increase the number of hospitals and dispensaries, particularly in the rural areas. The number of doctors has quite been limited in relation to population. Hence the great need for increasing seats in the medical courses and the establishment of new medical colleges particularly in rural areas. Hospital administration needs to be effectively overhauled to eliminate all sorts of malpractices. Effective implementation of the family planning programme and nutrition programmes also go a long way in raising the health status of the people. No single measure or policy can serve the overall purpose. What we need is a comprehensive approach so as to achieve a better health status of the people of Andhra Pradesh. In this context, mere expansion of health facilities may not be sufficient. Expansion of health facilities should also take place in most interior parts of the region. The policy of health has to be in terms of a general progress of the society, which involves progress in life in general, along with incomes, reduction of poverty, gainful occupation of people, higher degree of literacy and awareness, and therefore, a greater sense of protection on the part of people against vulnerability to disease and disorder.

TABLE 8.1

Number of cases (Indoor and outdoor) as recorded in Different Medical and Specialised Institutions according to International Classification of Diseases from during 1972 and 1983 in Andhra Pradesh

Disease	1972-73		1983	
	No. of patients treated	Cases per thousand population	Number of patients treated	Cases per thousand population
1.	2.	3.	4.	5.
1. Cholera	954	0.00	11402	2.6
2. Tuberculosis of meninges and central nervous system	13678	0.08	15825	3.6
3. Tuberculosis of bones and joints	6237	0.03	11175	2.5
4. Other Tuberculosis	17662	0.10	54163	12.1
5. Leprosy	72771	0.42	80090	17.9
6. Diptheria	13306	0.08	19811	4,5
7. Meningococeal Infection	5490	0.03	32490	7.3
8. Tetanus	4237	0.02	22655	5.1
9. Other ill-defined becterial disease	111716	0.649	278812	62.1
10. Acute Polio myelitis	11713	0.07	11563	2.6

11.	Measles	66543	0.38	23691	5.3
12.	Other ill-defined viral diseases	177330	1.02	50973	11.4
13.	Malaria	21433	1.23	148560	33.1
14.	Malignant neoplasm of rectum and rectosigmoid junction	2032	0.01	682	0.2
15.	Malignant neo-plasm of skin	2168	0.01	7057	1.6
16.	Malignant nonplasm of other and unspecified	2718	0.02	6184	1.4
17.	All other diseases of blood and blood forming organs	100108	0.57	49064	11.0
18.	Mental retardation	6679	0.04	1363	0.3
19.	Neuroses, personality disorders and other non- psychotic mental disorders	22537	0.13	28674	6.4
20.	Active reheumatic fiver	140871	0.81	1352270	30.2
21.	Chronic rheumatic heart disease	17190	0.10	11294	3.2
22.	Other diseases of arteries, arterials and capillaries	6441	0.04	10514	2.4
23.	All other diseases of circulatory system	47411	0.27	167202	37.3
24.	All other diseases of respiratory system	161736	0.93	336300	74.9
25.	Diseases of teeth and supporting structures	335942	1.93	414636	92.4

Source : Hand book of Medical and Health Statistics, p. 41.
State Bureau of Health Intelligence, Directorate of Medical and Health Services, Hyderabad, 1976 and 1987.

APPENDIX — I

EXPENDITURE ON HEALTH IN ANDHRA PRADESH

Table-1 indicates expenditure on health in Andhra Pradesh during 1982-87 and figures do show an increasing trend in expenditures on health. Table-2 gives a detailed account of non-plan and plan expenditure on medical, public health and family welfare during 1974-75 to 1985-86. The per capita expenditure on health was only Rs. 7.01 in 1974-75 and it has gradually risen to Rs. 27.92 by 1985-86. Table 3 presents capital expenditure on medical, health and family planning in Andhra Pradesh. The budgetary allocation under health sector during the 7th Plan period (1985-90) has been Rs. 16420 lakhs. Under the minimum needs programme, the financial outlays for different social development programmes during seventh plan period (1985-90) have been as follows. The outlay for rural health is Rs. 6739 lakhs, Rs. 14,000.00 lakhs for rural water supply (state sector), Rs. 3,000 lakhs for environmental improvement of slums; and Rs. 5,360 lakhs for nutrition.

Table 1

Budget Provided and Expenditure on Natural Eradication Programme (Plan)

Rs. in Lakhs

Year	Budget Provision	Expenditure
1982-83	117.00	122.63
1983-84	150.00	153.08
1984-85	212.00	213.89
1985-86	212.00	272.38
1986-87	217.00	388.54

Source : Govt. of Andhra Pradesh

TABLE 2

Expenditure on Medical, Health & Family Welfare in Andhra Pradesh

(Rupees in Lakhs)

Year	180-Medical*		282-P.H. **		281 P.H.		Grand Total			Per capita expenditure in Rs. only
	Non-plan	Plan	Non-plan	Plan	Non-plan	Plan	Non-plan	Plan	Total	
1974-75	2096.92	93.06	452.39	125.66	18.77	510.56	2568.08	729.28	3297.36	7.01
1975-76	2389.26	116.05	522.67	206.08	24.49	602.40	2936.42	924.53	3860.95	8.03
1976-77	2839.37	249.10	585.42	332.42	25.05	1491.15	3449.84	2072.67	5522.51	11.25
1977-78	2993.50	305.05	612.39	478.82	18.52	813.64	3624.41	1597.51	5221.92	10.43
1978-79	3288.04	516.30	657.51	532.26	20.24	909.26	3965.79	1957.82	5923.61	11.59
1979-80	3811.94	267.89	1063.05	337.42	25.90	976.85	4900.89	1582.16	6483.05	12.44
1980-81	4643.46	392.88	1494.22	388.61	26.47	1199.48	6164.15	1980.97	8145.12	15.33
1981-82	5272.94	648.80	1423.41	305.24	37.39	1495.63	6733.74	2449.67	9183.41	16.96
1982-83	5536.11	744.52	1608.52	441.67	36.01	1922.84	7180.64	3109.03	10289.67	18.66
1983-84	6521.71	649.87	2030.24	614.05	45.90	2843.74	8597.85	4107.66	12705.51	22.62
1984-85	7228.70	929.76	2316.76	819.83	42.59	3329.10	9586.05	5078.69	14666.74	25.65
	2210 Medical & P.H.				2211 P.H.		Grand Total		Per capita Expenditure	
	Non-Plan		Plan	Non-Plan	Plan	Non-plan	Plan	Total		
1985-86	10463.92		1886.06	232.69	3662.96	10696.61	5549.02	16245.63	27.92	

* Medical includes the expenditure on Employees State Insurance Scheme upto 1976-77. From 1977-78 it is excluded.

** Health includes expenditure on Drug Control upto 1975-76 and expenditure on Institute of Preventive Medicine upto 1980-81.

Source : Government of Andhra Pradesh

Table 3

Capital expenditure on Medical, Health and Family Welfare in Andhra Pradesh

(Rupees in lakhs)

Year	Non-plan	Plan	Non-plan	Plan	Non-plan	Plan	Non-plan	Plan	Total
1980-81	—	214.82	—	7.43	—	14.00	—	236.25	236.25
1981-82	—	177.94	—	4.32	—	15.68	—	197.34	197.34
1982-83	2.50	113.15	—	0.98	—	181.95	2.50	296.08	298.58
1983-84	1.86	247.92	—	4.03	—	314.23	1.86	566.18	568.04
1984-85	0.01	217.40	0.18	23.21	—	361.88	0.19	602.49	602.68
1985-86	—	369.99		—	—	557.21	—	927.20	927.20

Sources : Government of Andhra Pradesh

APPENDIX — II

MEASUREMENT OF NUTRITIONAL STATUS

The issues of malnutrition, and economic poverty and deprivation in India are of great importance both from the view point of alleviation of poverty and individual welfare, and the economic development of the nation. Several economic variables like income, employment, productivity, pace of economic development, etc., determine the nutritional status of the people and they are in turn influenced by it. The level of poverty and the nutritional status of the people are also highly interrelated.

Undernutrition and malnutrition have been inhibiting the growth process in the developing countries. There is indeed a vicious circle present in these countries which results in enormous wastage of material and human resources. Economic poverty, through its damaging effects on nutritional intake, health standard, standard of education and skills, working and earning capacity, becomes the major cause of its perpetuation. Periodical assessment of nutritional status will be helpful from the point of view of formulating policies and implementation of effective measures to enhance the nutritional standards of the people, particularly the vulnerable sections of the society like infants, pre-school children, pregnant and lactating women, etc., and mitigate poverty in the country.

The production of foodgrains per head and the per capital real income have been on the increase in India in recent years. In addition the Centre and State Governments of India have been implementing nutritional programmes from time to time to enhance the nutritional standards programmes of the people particularly the vulnerable groups and other anti-poverty programmes. Consequently the nutritional status of the people may be expected to have improved and poverty mitigated. Against this background, an attempt has been made to measure the changes in the nutritional status of the people in six states in India in 1973-74 compare to that in 1961-62. As the conclusions of the analysis are broadly the same for all the states except Kerala, attention is paid to Andhra Pradesh and Kerala only in this analysis.

Objectives

The objectives of this study are—

(a) to examine changes in the nutritional status of the people and incidence of poverty in 1973-74 over 1961-62 ;

(b) to see whether there has been a significant change in the nutritional status of the low income groups ;

(c) to throw light on inter-state variations and rural-urban differentials regarding consumption patterns in the above mentioned two states, and

(d) to analyse the causes for the identified change in the nutritional status and poverty.

Methodology and Data Base

For the purpose of this study the data, collected by the N.S.S. Organisation, have been used. The year 1961-62 has been chosen as the base year, and 1973-74 as the latest year for comparison because the data pertaining to quantities of food items consumed are available for only these two years. Further we have been taken into account only the consumption of cereals as the basis for assessment of the nutritional status of the people, for the reason of the non-availability of data pertaining to quantities of non-cereal foods consumed.

As the group-wise expenditure data are not comparable because of changes in prices and cost of living, and as the indices of group cost of living are not available for deflating, the following procedure is adopted to make groups comparable. In the first instance the cumulative percentage of households in the expenditure groups are calculated. On the basis of these percentages comparable expenditure groups were traced out with approximately equal percentage of households in the two years. And the same thing has been done for both the rural and urban areas.

Secondly, per capita per day intake of calories and nutrients in these comparable expenditure groups, both derived from the consumption of cereals have been calculated. The food items are converted into calorie and nutrient values by following the conversion factors of nutrient values of 100 gms. of edible portion.

Further, a composite index of nutrition has been calculated for the comparable expenditure groups by giving appropriate weights to calories and nutrients. The weights of the order of 0.26 for calories, 0.26 for proteins, and 0.08 for each of the other nutrient, have been given to arrive at the composite index of nutrition. Tables 1-4 present the change in the nutritional status of people of Andhra Pradesh in both the rural and urban areas during the period of the study. Tables 5 and 6 give the data for Kerala.

Major Findings of the Study

1. The intake of both calories and proteins, have declined in all the comparable expenditure groups in both the rural and urban areas in Andhra Pradesh between 1961-62 and 1973-74. In Kerala we find an increase in calories intake in the lowest comparable groups in rural areas, and in the first three comparable groups from the bottom in urban areas. As regards protein intake, the first four comparable groups in rural areas and all the groups in urban areas have shown considerable increase.
2. Nutritional status as measured by the composite index of nutrition showed that, the nutritional status has considerably declined in both the rural and urban areas of Andhra Pradesh. On the other hand, there is substantial improvement in the first four comparable groups in urban areas and in the lowest comparable groups in rural areas.
3. The partially divergent trend in Kerala may be partly due to the significant substitution of cereal substitutes for Rice in both Rural Areas and Urban Areas (Table 7b).
4. The percentage of population below the poverty line has increased both in Andhra Pradesh and Kerala, and both in rural and urban areas.

5. The substantial decline in the real value of expenditure in all the comparable groups must be considered as a factor contributing to the rise in poverty (Tables 3 and 4).

It may be concluded that periodical assessment of the nutritional status of the people at various levels through socio-economic surveys of households will be of great use for planners and policy makers. Such estimates need to be taken as the basis for various strategies and policies intended for the promotion of nutritional status of the people, particularly the vulnerable groups. Supply and distribution of foodgrains at stable prices should be undertaken. Priority should be given to anti-poverty programmes like employment, production, etc., in which the participation of the poor will be substantial.

Table I

Per capita per day intake of calories and nutrients in rural areas of Andhra Pradesh 1961-62 to 1973-74

Comparable Monthly per capita expenditure groups		Cumulative % of sample households		Calories (K-Cal.)		Proteins (Gms.)		Composite Index of Nutrition	
1961-62 1.	1973-74 2.	1961-62 3.	1973-74 4.	1961-62 5.	1973-74 6.	1961-62 7.	1973-74 8.	1961-62 9.	1973-74 10
0 — 8	0 — 21	4.55	5.25	1197	1043	31.24	28.70	373.17	301.48
0 — 13	0 — 34	29.74	24.35	1386	1186	35.06	30.82	406.78	339.45
0 — 15	0 — 43	41.58	46.52	1493	1254	36.95	32.04	435.00	357.65
0 — 21	0 — 55	64.80	66.91	1924	1322	45.75	33.17	562.57	376.07
0 — 34	0 — 75	85.32	85.11	1817	1392	42.60	34.36	517.17	395.11
0 — 75	0— 200	98.18	98.94	2148	1605	48.40	38.00	603.75	452.89

Table — 2

Average intake of nutrients in urban areas of Andhra Pradesh

Comparable Monthly per capita expenditure group		Cumulative % of sample households		Calories (K.Cal.)		Proteins (gms.)		Composite Index of Nutrition	
1961-62 1.	1973-74 2	1961-62 3.	1973-74 4.	1961-62 5.	1973-74 6.	1961-62 7.	1973-74 8.	1961-62 9.	1973-74 10.
0 — 8	0 — 24	1.45	1.35	991	592	24.05	12.82	405.19	162.22
0 — 13	0 — 34	11.80	10.54	1146	746	27.51	16.29	331.1	207.88
0 — 21	0 — 55	46.79	45.18	1246	893	28.31	19.30	351.96	245.46
0 — 28	0 — 75	65.43	66.72	1324	967	29.35	20.90	371.22	365.85
0 — 75	0 — 200	96.07	97.15	1479	1112	32.35	24.01	411.38	306.14

Table — 3

Real total expenditure on food in 1961-62 and 1973-74 in rural areas of Andhra Pradesh in comparable expenditure groups

Comparable expenditure groups		Mean value of expenditure on food		Expenditure in each group in 1973-74 (expressed in 1961-62 prices) Rs.	Difference Rs.	Percentage fall	Expenditure on cereal food to total food expenditure (%)	
1961-62	1973-74	1961-62 (Actuals)	1973-74 (Actuals)				1961-62	1973-74
1	2	3	4	5	6	7	8	9
0 — 8	0 — 21	5.3 (82.74)	12.18 (81.10)	4.73	–0.59	11.09	4.27 (82.26)	3.68 (77.71)
0 — 13	0 — 34	7.69 (83.00)	16.33 (81.80)	6.34	–1.35	17.56	5.82 (76.72)	4.77 (75.19)
0 — 15	0 — 43	8.50 (81.30)	18.19 (81.70)	7.07	–1.43	16.82	6.41 (75.38)	5.19 (73.50)
0 — 21	0 — 55	10.27 (79.31)	20.34 (74.17)	7.90	–2.37	23.08	7.42 (72.22)	5.65 (71.46)
0 — 34	0 — 75	12.79 (73.30)	22.75 (73.32)	8.84	–3.95	30.88	8.65 (67.60)	6.08 (68.80)
0 — 75	0 — 200	16.18 (63.36)	32.13 (61.00)	12.48	–3.70	22.87	10.26 (63.09)	7.39 (59.17)

Figure in brackets refer to corresponding percentage shares in total consumer expenditure

Table — 4

Real Total Expenditure on food in 1961-62 and 1973-74 in urban areas of Andhra Pradesh in the comparable expenditure groups

Comparable expenditure groups Rs.		Mean value of Expenditure on food		Expenditure in each group in 1973-74 (expressed in 1961-62 prices) Rs.	Difference Rs.	Percentage fall	Expenditure on cereal food to total food expenditure (%)	
1961-62	1973-74	1961-62 (actuals)	1973-74 (actuals)				1961-62	1973-74
1.	2.	3.	4.	5.	6.	7.	8.	9.
0 — 8	0 — 24	5.19 (84.12)	12.03 (81.00)	4.67	-0.52	10.02	3.79 (73.03)	2.81 (60.1)
0 — 13	0 — 34	7.70 (81.77)	15.21 (80.58)	5.91	-1.79	23.25	5.27 (68.40)	3.64 (61.7)
0 — 21·	0 — 55	9.90 (76.00)	19.37 (79.52)	7.53	-2.37	23.94	6.14 (61.95)	4.50 (59.83)
0 — 28	0 — 75	11.65 (73.93)	22.11 (78.04)	8.59	-3.06	26.27	6.77 (58.10)	4.98 (58.04)
0 — 75	0 — 200	16.23 (63.41)	33.75 (67.00)	13.11	-3.12	19.22	7.91 (53.18)	5.97 (45 50)

Figures in brackets refer to percentage share of food in total consumer expenditure

Table — 5

Per capita per day intake of calories and protiens in rural areas of Kerala

Monthly per capita expenditure groups (in Rs.)		Cumulative percentage of sample house holds		Calories		Protein		Composite Index of Nutritions	
1961-62 1.	1973-74 2.	1961-62 3.	1973-74 4.	1961-62 5.	1973-74 6.	1961-62 7.	1973-74 8.	1961-62 9.	1973-74 10.
0 — 8	0 — 21	5.63	5.27	807	861	28.01	40.00	254.57	276.31
0 — 13	0 — 34	26.29	23.41	1081	989	38.27	42.80	326.27	311.42
0 — 15	0 — 43	36.15	39.38	1115	1011	36.95	43.00	331.07	317.31
0 — 28	0 — 75	75.12	75.04	1416	1126	45.41	46.10	417.75	350.28
0 — 55	0 — 150	94.85	95.97	1602	1259	49.70	49.00	469.55	387.25
0 — 75	0 — 200	97.65	97.52	1574	1369	47.65	52.47	459.19	419.25

Table — 6

Percapita per day intake of calories and proteins in urban areas of Kerala

Monthly percapita expenditure groups (in Rs.)		Cumulative percentage of sample households		Calories		Protein		Composite Index of Nutritions	
1961-62 1.	1973-74 2.	1961-62 3.	1973-74 4.	1961-62 5.	1973-74 6.	1961-62 7.	1973-74 8.	1961-62 9.	1973-74 10.
0 — 8	0 — 21	3.54	2.45	520	581	17.93	25.61	155.69	184.12
0 — 11	0 — 28	11.62	10.20	619	684	20.16	28.26	179.48	213.16
0 — 13	0 — 34	16.16	17.96	704	877	19.01	38.00	201.10	274.73
0 — 18	0 — 43	29.29	29.39	858	899	20.83	38.05	240.91	281.38
0 — 28	0 — 55	48.99	47.35	1102	946	26.00	38.23	309.70	292.98
0 — 55	0 — 100	76.77	73.88	1230	1030	29.40	39.20	344.36	314.68

Table — 7

Per capita per day consumption of cereals, gram, cereal substitutes in kgs.

Andhra Pradesh

Items	Rural		Urban	
1.	1961-62 2.	1973-74 3.	1961-62 4.	1973-74 5.
Rice & Wheat	0.366	0.358	0.382	0.398
Millets	0.199	0.169	0.060	0.038
Gram	0.001	—	—	—
Cereal Substitutes	—	—	—	—
Total Cereals, Gram, Cereal substitutes	0.566	0.527	0.442	0.436

Table — 8

Per capita per day consumption of cereals, gram, and cereal substitutes in Kgs.

Kerala

Items	Rural		Urban	
1.	1961-62 2.	1973-74 3.	1961-62 4.	1973-74 5.
Rice & Wheat	0.330	0.254	0.335	0.264
Millets	—	0.002	—	—
Gram	—	—	—	10.001
Cereal Substitutes	0.172	0.233	0.047	0.121
Total Cereals, Gram, Cereal Substitutes	0.502	0.489	0.382	0.386

Table — 9

Percentage of Population below the poverty line

State	Rural		Urban	
	1961-62	1973-74	1961-62	1973-74
1.	2.	3.	4.	5.
Andhra Pradesh	54	58	47	48
Karnataka	40	55	36	42
Kerala	48	50	36	49
Maharashtra	51	53	24	32
Orissa	62	69	33	43
Tamil Nadu	42	59	33	52

N.B: The above estimates are derived by using all India poverty line of Rs. 17.00 and Rs. 20.00 for rural and urban areas per month in 1961-62 prices and Rs. 49.09 for rural areas 56.64 for urban areas per month in 1973-74 prices corresponding to minimum daily requirement of 2400 per person in rural areas and 2100 calories in urban areas.

Source : A Technical note on the sixth plan of India (1980-85) Planning Commission Government of India.

APPENDIX - III

SAMPLE SURVEY OF STERILIZATION CASES OF MASS STERILIZATION CAMP

1. Introduction

Visakhapatnam district achieved the unique distinction of the highest percentage, i.e., 298.73 per cent of the target for sterilization cases during April to October, 1986. Srikakulam district stood second with 149.73 per cent. Visakhapatnam district could achieve this success because of the mass sterilization camps organised in several of the district, seriously involving revenue social welfare, RTC, education, Health Service Clubs, Industrialists and Local Self Government Departments. The entire operation is led by the district collector. The purpose of this survey is to know the reaction of the public especially the beneficiaries of the programme.

Mass sterilization camps approach is not new to the Family Planning Programme in India. These camps were initially very successful in Kerala during the last decade. However, later they were abandoned because of the adverse reaction from the public. The current thinking in the country seems to be in terms of reducing the emphasis on fertility control and also strengthen the human resource development. Regarding Family Planning, the Seventh Five Year Plan indicates that it aims at promoting "Family Planning on a voluntary basis as a people's movement" The Seventh Plan Family Planning target is to increase effective couple protection rate from 32 per cent in April, 1985 to 42 per cent by March 1990. This target is sought to be attained by performing 31 million sterilizations and by inserting 21.25 million IUDs during the Seventh Plan period. The approach proposed is emphasis on "camp approach" and "incentives scheme"

2. Mass Sterilization Camp Plan-Preparation and Execution

The District Collector of Visakhapatnam has prepared the action plan in consultation with Medical Officers, Revenue officials, social welfare officials, RTC officials, Voluntary Agencies, Public and Private sector undertakings, etc. Resources from Government and non-Governmental Agencies were pooled for giving a package of incentives to attract eligible couples to the camps. The time schedule for the samples originally planned from June to August, 1986. But the programme was made possible only from September 1, 1986 and was continued upto October, 1986. Wide publicity was given to the programme through Radio and Newspapers and through information and public relations, N.S.S., Volunteers, and Youth Clubs in Nehru Yuvak Kendras.

In Visakhapatnam District, a total of nineteen camps were organised. Each camp was headed by a camp officer and 3 to 7 Assistant Camp Officers were nominated for each camp. A total of 19 camps were planned in urban areas, and 7 in rural areas. In Visakhapatnam city itself 6 camps were organised.

The most important part of the scheme was the incentives for the acceptors. The incentives committee is chaired by the Deputy Director of Social Welfare. The members of the Committee were representatives of District Rural Development Agency, Andhra Pradesh State Housing Corporation, Scheduled Castes Corporation and the District Supply Officer. The type of incentives proposed were preference in allocation of house sites, priority in the allotment of houses to weaker sections, priority in the sanction of loans of District Rural Development Agency and Scheduled Castes Corporation, and issue of green cards for eligible acceptors. Apart from Janata Sarees and Dhoties, daily lottery at each camp, bumper lotteries of district level were arranged.

3. Objectives, Methodology and Data Collection

Generally, follow-up surveys are aimed at the objective of obtaining the views of Family Planning acceptors about the benefit or short-falls of the programme. Apart from the two important objectives, the survey also aims at obtaining the information about the age occupation, family size, income, education, religion, caste, place of birth, age at marriage and reasons for acceptance of the beneficiaries. The Survey was conducted two months after the mass sterilization camp was closed i.e. in the month of January, 1987. Our investigators have canvassed a two page brief schedule among the beneficiaries and thus collected relevant data.

5. The Analysis

4.1 Of the sample acceptors of 115,112 (97.4 %) acceptors are Hindus and 3 (2.6 %) are Muslims and there are no others. Of the total 115 acceptors, 19 (16.5%) are forward caste people, 21 (18.3%) are SC's, 3 (2.6%) are S.Ts. 42 (36.5%) belongs to Backward Class group A, 14 (12.2%) belong to B.C. group B, and 16 (13.9%) belong to B.C. group D. There is no representation of B.C. C category. Thus the vast majority, i.e., 83.5 per cent of the acceptors belong to socially disadvantaged sections of the society.

Of the total 115 sample acceptors of 58 (50.5%) are born in Visakhapatnam, 23 (20%) are born elsewhere in the Visakhapatnam district and migrated to Visakhapatnam, 31 (27%) are born in the neighbouring districts and migrated to the city, 1 (0.8%) is born in other districts of Andhra Pradesh and migrated to the city, 2 (1.7%) are born in other States and migrated to the city. Thus, of 115, 57 (49.5%) are migrants to the city.

Regarding the age-distribution of the acceptors 91.4 per cent of females, 86 per cent of males belong to the age group of 19-33. 51.3 per cent of females and 46 per cent of males belong to the age groups of 24-28. As there is no male case in the age group of 14-18, but there is a sample female case in that age group.

Again, of the total 115 acceptors, 17 (14.8%) have jobs, 23 (20%) are self-employed persons, 11 (9.6%) are petty traders, 3 (2.6%) are professional (Washermen and Barbers), 8 (6.9%) are rickshaw or auto drivers, 47 (40.9%) are daily wage labourers, 6 (5.2%) belong to other occupational groups. Thus, major proportion of acceptors i.e. 40.9% are poor daily wage earners.

Income distribution of the acceptors is quite interesting. Of the total acceptors of 115, 24 (20.8%) have incomes less than Rs. 300 per month, 78 (67.8%) have incomes between Rs. 301 and 500. There are only 13 (11.4%) whose incomes are more than Rs. 501. Thus, 89 per cent of the acceptors are economically weaker sections of the society whose annual income is less than Rs. 6,000.

Of the sterilized females, 20.9 per cent got married at the age of 10-14 years, 53 per cent at the age of 15-18 years, 20 per cent at the age of 19-22 years, 6.1 per cent at the age of 23- 26. Of the sterilised males, 0.8% married at the age of 10-14 years, 12.2% at the age of 15-18 years, 33 per cent at the age of 19-22 years, 35.7 per cent at the age of 23-26 years, 15.7 per cent at the age of 27-30 years, and 2.6 per cent at the age of 27-30 years. Thus of the sterilized females 83 per cent got married in the age group of 15-22 years, and 45.2 per cent of males got married in that age group. 51.4 per cent of males got married in the age group of 23-30 years.

Our questionnaire contained a question on the number of living children at the time of sterilization. Our survey reveals that there are 4 (3.5%) cases have only one child, 55 (47.8%) cases have two children, 36 (31.4%) cases have three children, 15 (13%) cases have four children, 4 (3.5%) cases have five children, and there is only one case, which has six children. Thus, 82.7% of the households have less than three children and 17.3% have more than three children. Of the female sterilization cases 74.8 per cent and 60.9 per cent of males are illiterates. 8.7 per cent of females and 19.1 per cent of males have primary education. 16.5 per cent of females and 18.3 per cent of males have secondary school education.

Our questionnaire contains a question on the particulars of the promoters. In our sample, maximum number, i.e., 41 (35.7%) promoters are teachers, 36 cases (31.3%) have decided themselves 20 per cent cases were promoted by A.N.M.S., 6.1 per cent cases promoted by Mahila Mandals, 3.5 per cent cases promoted by their relatives, 1.7 per cent cases promoted by friends. Thus, teachers, seem to be having a greater say in convincing economically poor people to deal with the issue of family planning.

The secret of the success of the mass sterilization camps seems to be the unprecedented expectations of these poor families in terms of benefits like houses, house sites and loans. Of the total 115 sample cases, 113 cases (98.3%) have to expectation of house sites, houses and loans, and only 2 cases (1.7%) accepted because of free transport facility. The majority of the cases were influenced by the propaganda. Most people accepted the programme because of the general belief that there would be a better care in the camps. But none of our sample acceptors got any additional benefit other than the usual financial incentive of Rs. 145 plus *sari* and *dhoti*.

The investigators had a difficult time to get information from the acceptor household because, the acceptors were very critical of the whole programme and complained that they did not get additional benefit. Added to that, 33.8 per cent of the respondents reported complications after the operation. 22.6 per cent of the sterilized cases reported pain in the abdomen, 4.3% of the cases reported discomfort, 1.7 per cent reported obesity, and 5.2 per cent of the cases reported other complications. Thus, a remarkable number of the acceptors (33.8%) have some complication or the other, and complained that not even a single representative of the Government enquired about their welfare after the sterilization. In spite of the provision in the programme for a follow-up of the sterilization cases, it seems that such a follow-up was not done.

Conclusions and Policy Implications

Probably for the first time, in Visakhapatnam district, in particular, and in Andhra Pradesh in general, so many Government and Non-government organisations and other personnel were involved in a family planning programme. The success of the programme depended on the promises of economic benefits from banks, departments of social welfare, revenue, municipality, etc. Also, the propaganda regarding the incentives and economic benefits were so convincing that these poor families believed that they would get benefits, particularly, house sites if they get operated. Also, the acceptors were in need of the facilities of transport, and better post-operative care in the hospital.

Thus, it is to be pointed out that most programmes of this kind have been based on promises which cannot be kept for various reasons. What is needed is genuine motivation in the backward society, and not mere propaganda. The present situation is that in most parts of the region, people are not only disillusioned but have become averse to the very idea of target oriented family planning, which sets the clock on the reverse.

APPENDIX — IV

DEVELOPMENT OF HEALTH SERVICES THROUGH PRIMARY HEALTH CARE APPROACH

About 525 million people (76.6%) live in the rural areas (1981 census) having inadequate health and medical care facilities. This large population is scattered over 5.76 lakhs villages. Children in the Age-group 0-14 years constitute about 39% of the total population. Only 30% of the people in rural areas are able to read and write. Poverty prevails widely in the country-side. The per capita income at 1970-71 price levels was only Rs. 712 during the year 1982-83. Only 38% of the total population constitutes the working force, with consequent higher dependency ratio. Using calorie consumption as a criterion 37% of the total population live below the poverty line. In the rural areas people live in KUCHCHA houses with poor environmental sanitation, and proper housing facilities are non-existent for a large population.

A good deal of imbalance between rural and urban areas in the provision of medical care services has occurred. In 1984 there were 1,894 hospitals in the rural areas as against 5,287 in the urban areas and the beds provided were in the ratio of about 1.6.

With such a low per capita income, high level of illiteracy and stron ethnic and linguistic bonds, it has been a challenge to the Central and State Governments to improve the level of living of rural people. The National plans have been directed towards raising the people from the morass of economic and social backwardness and to this end various policy measures have been taken. One of the directive principles of the Constitution is that the State shall regard the raising of the level of nutrition and standard of living of its people and improvement of public health among its priority duties.

Although during the early post-independence period emphasis was more on provision of increased medical care of facilities, the government realised the need to pay equal attention to preventive, promotive and public health aspects of health care. The shift in emphasis has been evolved over successive Five-Year Plan periods.

HISTORICAL DEVELOPMENT

Development of health services in India through primary health care approach started with the recommendations and guidance provided by the Health Survey and Development Committee (Bhore Committee) in 1946. The Committee made a complete survey of health conditions and took stock of the then existing facilities. Their recommendations constituted the beginning of modern health planning in India.

Bhore Committee (1946)

Having realised the immediate and urgent need for a network of rural health services, the Committee recommended the establishment of primary health centres at the rate of one centre for 10,000 to 20,000 population in the long term perspective, and one centre for 40,000 population in the short term perspective. Lack of resources prevented reaching the short term goal even in 1985. However the Committee gave impetus to their establishment. The first integrated all round rural development programme was launched in the country in October, 1952.

It was proposed to establish one primary health centre (PHC) for each community development block. At that time the operational responsibilities of the PHC were to cover medical care, control of communicable diseases, maternal and child health, nutrition, health education, school health, environmental sanitation and collection vital statistics. Every PHC had three sub-centres, each having a trained midwife for providing MCH services.

Mudaliar Committee (1959-61)

The Health Survey and Planning Committee (Mudaliar Committee) recommended integration of curative and preventive services, upgradation of existing primary health centres by stages to reach for the recommended pattern of the Bhore Committee and an increase in medical coverage of the rural populace through mobile health units visiting them from district and taluk headquarters.

Mukherjee Committee (1964)

A special committee appointed by the Government of India under Shri B. Mukherjee in 1964 recommended further expansion of facilities with the addition of a rural family planning centre at each primary health centre, one sub-centre for 10,000 population manned by a trained ANM, and one LHV to supervise and guide the work of four sub-centres. One more Medical Officer and supporting staff at PHC was also recommended.

The Government made great efforts to expand the health service on the lines indicated by the Mukherjee Committee during the Fourth Plan. Another important development after the Bhore Committee was an all-out effort to eradicate or control major killing and debilitating diseases. Special programmes were undertaken to tackle such diseases.

A study undertaken by the National Institute of Health Administration and Education to assess the extent of utilisation of various resources in a district health set-up and to suggest changes to optimise the use of health resources, indicated that introduction of the multi-purpose health workers to implement the programme would be more appropriate and effective.

Kartar Singh Committee (1974)

This Committee reinforced the concept of multi-purpose workers (MPW) as desirable and feasible and recommended that for providing integrated health and family welfare services in the rural areas, the same should be implemented in a phased manner. The Committee also felt that integration should not only be at the peripheral level but should also extend to TEHSIL, district and state levels. A policy decision was taken by the Government of India in 1975 that all uni-purpose programmes be integrated under the MPW Scheme.

Shrivastava Committee (1975)

During the year 1975, another committee on Medical Education and Support Manpower (Shrivastava Committee) was appointed.

to devise a suitable curriculum for training a cadre of Health Assistants conversant with basic medical aid, preventive and nutritional services, family welfare and maternity and child welfare activities so that they can serve as a link between the qualified medical practitioners and multi-purpose workers, thus forming an effective team to deliver health care, family welfare and nutritional services to the people.

The committee recommended the creation of band of para-professional or semi professional health workers from the community itself to provide simple, promotive, preventive and curative health care needed by the community.

ALMAATA DECLARATION (1978)

In the International Conference on Primary Health Care, jointly organised by the WHO and UNICEF in Almaata, USSR in September, 1978, fundamental principles of health development were enunciated and a declaration was made. This declaration endorsed the earlier resolution of the (30th World Health Assembly, 1977) that a minimum level of health for all the citizens of the world would be attained by the year 2000 AD that would permit them to lead an economically productive and socially useful life. This is popularly known as Health for All (HFA) and it is to be achieved through primary health care approach in a spirit of social justice and as a part of overall development. Development of health is to be based on self-determination and self-reliance in health on the part of the individual, the community and the nation. There should be more equitable distribution of health resources, with preferential allocation of resources to those in greatest social need. The health care system should adequately cover the population. The emphasis should be on preventive and promotive aspects well integrated with curative, and rehabilitative and environmental measures. There is a need for social orientation of all categories of health workers to serve the people properly.

Health care cannot be achieved by health sector alone. It can be and indeed should be attained through strong national political commitment, and in coordination with efforts simultaneously made by other sector of social and economic development, beside health. Development is an integrated effort and health care development draw its sustenance from the development of other areas. Therefore, the health policy and strategy have to be a part of overall developmental policies and goals.

NATIONAL HEALTH POLICY (1983)

Although the national health policy in India was framed and announced only during 1982-83 the policy framework and the strategies for health care were provided over the past three decades mainly by the following important policy making organs the Constitution of India, the National Development Council (NDC), the Planning Commission and several advisory bodies and consultative committees. Ministry of Health and Family Welfare and the legislature. The National Health Policy of India was adopted by Parliament in 1983. This policy document has dealt with the urgent problems requiring attention, the progress achieved so far, the existing picture, and what is required to be done. It has also provided specific indicators for the achievement of certain basic health and family welfare goals (Table 1) :

HEALTH SERVICES ORGANISATION AND INFRASTRUCTURE

The country is divided into 22 major states and 9 smaller union territories, which in turn are divided into administrative districts. At present, there are 431 districts. Each district is divided into Sub-districts or taluka, under which are situated the community development blocks. There are about 6,000 community development blocks in the country.

Over the past three decades, health services infrastructure and health care facilities have been expanded considerably (Table 2). It is aimed to further improve the facilities as noted below.

Facilities at village level

For about 1000 population in a village, there will be one health guide and one trained DAI or traditional birth attendant (TBA) both of whom will be selected from the community. They will be trained at the level of PHC and sub-centre. These two village level functionaries are to receive technical support and continuing education from the multi-purpose health workers (male and female) posted at the sub-centre. Other administrative control and supervision should ideally be carried out by the village health committee or village panchayat.

Facilities at Sub-centre level

The most peripheral health institutional facility will be at the Sub-Centre, manned by one male and one female multi-purpose health workers. At present, in most places there is one sub-centres over 10,000 population. It is however, aimed to have one sub-centre per 5,000 population (3000 population in hilly and desert areas and difficult terrain

Goals for Health Family Welfare

Indicator	Current Level	Goals 1985	1990	2000
1	2	3	4	5
1. Infant mortality rate	Rural 114 (1982) *	122		
	Urban 62 (1982)	60		
	Total 105 (1982)	106	87	Below 60
2. Perinatal mortality	55.7 (1980)			30.35
2. Crude death rate	11.9 (1982)	12	10.4	9.0
3. Pre-school child (1-5 yrs)	24 (1976-77)	20.24	15.20	10
4. Maternal mortality rate	4-5 (1976)	3.4	2.3	Below 2
5. Life expectancy at birth	Male 54.1 (1980)	55.1	57.6	64
	Female 54.7 (1980)	54.3	57.1	64
6. Babies with birth weight below 2500 gms (Percentage)	30	25	18	10
7. Crude birth rate	33.8 (1982)	31.0	27.0	21.0
8. Effective couple protection (Percentage)	31.9 May (1985)	—	42.0	60.0
9. Net reproduction rate (NRR)	1.48 (1981)	1.34	1.17	1.00

(Table Contd.)

10.	Growth rate (annual)	2.24 (1971-81)	1.90	1.66	1.20
11.	Family size	4.4 (1975)	3.8		2.3
12.	Percentage mothers receiving antenata care	40-50	50-60	60-75	100.
13.	Deliveries by trained attendants	30-35	50	80	100
14.	Immunisation status 1% TT (for pregnant woman) TT (for school children)	20	60	100	100
	10 years		40	100	100
	16 years	20	60	100	100
	DPT (children below 3 years)	25	70	85	85
	Polio (infants)	5	50	70	85
	BCG (infants)	65	70	80	85
	DT (new school entrants 5-6 years)	20	80	85	85
	Typhoid (new school entrants 5-6 years)	2	70	85	85
15.	Leprosy percentage of disease arrested cases out of those detected	20	40	60	80
16.	TB-percentage of disease arrested cases out of those detected	50	60	75	90
17.	Blindness incidence (%)	1-4	1.0	0.7	0.3

by the end of Seventh Plan i.e. 1990. To date about 83,000 sub-centres (both on old and new patterns) have been established.

Facilities at PHC level

At present in each block there is one PHC, which covers 1,00,000 or more population by the year 1990 one PHC is envisaged for every 30,000 population. Many rural dispensaries are being upgraded to subsidiary health centre or the new PHCs. Each new PHC will have one Medical Officer, one block extension educator (BEE) two health assistants - one male and one female and health workers and other supporting staff. To date there are about 11,000 PHCs (both old and new combined).

Facilities at community health centre

For a successful primary health care programme, effective referral support is necessary. It is envisaged that one community health centre (CHC) for every 1,00,000 population, will provide all specialist services. Community health centre will be established by upgrading sub-district/Taluka hospitals and some of the block level PHCs. For strenghtening preventive and promotive aspects of health care, a new non-medical post called community health officer (CHO) will be provided at each CHC.

Facilities at district level

District health organisation is to be appropriately strengthened to cater to the needs of the expanding rural health and family welfare programmes. Not only the planning and implementation and monitoring of health and family welfare programmes are to be carried out at the district level (Preferably on a decentralised basis) all the referral services from the periphery i.e. PHC community health centres, taluk hospitals are to be attended to satisfactory.

The Primary contact care will be provided by the health functionaries at the village level and by the multi-purpose workers at the sub-centre level. The cases needing further help will be dealt with at the PHC, and those needing referral support by the specialists would be referred to community health medical college/specialised hospitals respectively.

CONCEPT OF PRIMARY HEALTH CARE

The concept and dimension of primary health care and also those of health were clearly defined at the international conference held at Alma Ata in 1978 Health development should be considered as an integral part of social and economic development.

Dimensions of health

(1) Health is defined as a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity.

(2) Health is also a fundamental human right and therefore the attainment of the highest level of health is a most important social goal.

(3) Achievement of health requires coordinated efforts of social economic sectors, besides the health sector.

Concept of Primary health care

Primary health care has the following characteristics :

1. It is an essential health care which is to be based on practical, scientifically sound and socially acceptable methods and technology.
2. It should be rendered universally accessible to the individuals and the famlilies in the community through their full participation.
3. Its availability should be at a cost which the community and the country can afford to maintain at every stage of their development in a spirit of self-reliance and self-development.

Primary health care, an integral part of the country's health system should be a central function and the main agent for delivering health care. It is the first level of contact of the individual the family and the community with the national health system bringing health care nearer to people. This should get full support in the following areas from the rest of the health system.

(a) consultation on health problems

(b) referral of patients to local or other specialised institutions

(c) supportive supervision and guidance ; and

(d) logistic support and supplies.

ESSENTIAL COMPONENTS OF PRIMARY HEALTH CARE

For effective primary health care the following essential components are to be implemented in an integrated manner.

(1) Education of the people about prevailing health problems and methods of preventing and controlling them.

(2) Promotion of food supply and proper nutrition.

(3) Adequate supply of safe water and basic sanitation.

(4) Maternal and child health care and family planning.

(5) Immunisation against major infectious diseases.

(6) Prevention and control of locally endemic diseases.

(7) Appropriate treatment of common diseases and injuries.

(8) Provision of essential drugs.

SUPPORTIVE ACTIVITIES FOR PRIMARY HEALTH CARE

For successful implementation of the essential components of primary health care.

WHO has identified supportive activities which are given below :

(1) Community involvement and participation.

(2) Intra and inter-sectoral co-ordination.

(3) Provision of effective referral support.

(4) Development and mobilization of resources.

(5) Involvement of managerial process.

(6) Medical and health services research, including innovative approaches.

(7) Development and application of appropriate technology.

(8) Health manpower development.

MAJOR PROBLEMS AND CONSTRAINTS IN THE HEALTH AND FAMILY WELFARE

Based on the existing reports and studies, certain major health problems can be broadly, categorised. These pertain to health, maternal and child health and family planning and operational aspects. These three aspects are discussed in detail below.

Health aspects

(1) The incidence of communicable and vectorborne disease such as tuberculosis (TB) malaria, filaria, leprosy, poliomyelitis, tetanus, etc., and other preventable diseases is still high. In 1983 about 2.02 million cases of malaria were recorded ; about 1.5 per cent of the total population are estimated to be suffering from active TB of lungs.

(2) Widely prevalent malnutrition and under-nutrition pertain to protein-calorie deficiencies, vitamin-A and iodine deficiencies, and nutritional anaemia.

(3) Safe and potable water is available only to a small proportion of population. There are about 1,64,310 problem villages which do not have potable drinking water. Many of the waterborne diseases prevalent in the country are preventable; but the importance of the use of pure and safe water as well as of personal hygiene are not properly appreciated.

(4) Environmental sanitation, particularly in rural areas and urban slums, is very poor. Less than 10% of the population in rural areas have proper sanitation facilities. Arrangements for proper disposal of human and animal wastes, sewage and sullage etc. are largely lacking.

(5) Many health problems have their roots in various aspects of community life, and these cannot be effectively managed by medical or health interventions alone.

Maternal and child health and family planning aspects.

(1) Maternal and infant mortality rates are still high. Maternal mortality is presently 4 to 5 per 1000 live births and infant mortality rate was 105 per 1000 live births in 1982. About 50 to 60 per cent of infant deaths occurs during the neo natal period (0-28) days). Some of the important causes of maternal mortality are sepsis haemorrhage, toxaemic, illegal abortion, malnutrition and repeated child births. The important causes of deaths among infants and young children are prematurity, tetanus neonatorum, diarrhoea, malnutrition and

respiratory infections. Several factors, such as inadequate care of mothers at risk, poor maternal health, lack of referral services etc. contribute to this mortality.

(2) Nutrition deficiency states are particularly noticeable among pregnant mothers, and among infants and children. Malnutrition is the causative factor in 7% of the deaths in the age group of 0 to 5 years, and in yet another 46% it contributes in association with other factors.

(3) The percentage of pregnant mothers receiving ante-natal care is only about 50% of the total, situation in rural areas is much worse ; about 80% pregnant women are being delivered by untrained persons.

(4) Crude birth rate is still quite high (33.8/1000 population). The effective couple protection was 33% in 1985. If the birth rate is to be reduced to 21% per 1000 population and the net reproduction rate of unity (NRR-1) is to be achieved by 2000 AD about 60% of the eligible couples have to be effectively protected.

(5) Of the 33% protected couples, 28% have accepted sterilisation and only about 5% have used spacing methods. Among the acceptors of sterilisation, about 80% had 3 or more living children. Obviously, therefore to achieve appreciable demographic impact more attention is to be paid low parity couples needing spacing methods.

Operational aspects

(1) While about 78% of the population reside in rural areas, abo 80% of medical and health care facilities are located in urban areas. Poor communication facilities and lack of transport for health personnel in rural areas add further to the problem.

(2) Outreach and utilisation of services in rural areas are limited. Health services are not accessible in rural areas. A large percentage of deaths take place unattended by any qualified doctor.

(3) Health education and awareness of its importance among rural people is woefully meagre which results in under-utilisation of services. Illiteracy and superstitions cut across efforts to

communicate with the community in health and related matters.

(4) Integrated development is yet to take roots in the country.

(5) Infrastructure development is still inadequate with low doctor and health worker population ratio. Some categories of health functionaries like MPWs (male and female) are in short supply.

(6) The per capita (public sector) expenditure on health (medical and public) health during 1981-82 was hardly Rs. 28 annually. Even these limited resources, made available to the health sector are largely spent on urban curative services.

(7) Plans are drawn up and implemented by health planners and programme administrators without the community being involved at any stage of the programme. The community never has the feeling that its participation is the most important component of the programme. As a result there is want of self-reliance on the part of the community.

(8) Inadequate and often inappropriate training of health personnel of all categories, couples with lack of supportive and total absence of continuing education have made the delivery system largely ineffective.

(9) Lack of managerial skills among health professionals has contributed to poor health care services in the rural areas.

(10) Majority of the professionals who participate in the execution of health programmes have little appreciation of preventive and promotive aspects of health.

APPROACHES FOR IMPLEMENTING DIFFERENT COMPONENTS OF PRIMARY HEALTH CARE

Education about health.

People living in rural areas and urban slums, do not generally have knowledge about health matters. Traditions, superstitions, illiteracy and economic backwardness prevent even imitation of progressive health practices. They should be educated about health problems in the community the need for promotion and maintenance of health the available resources and how and when to utilise them. There is an urgent need to step up health education activities through media of mass communication. Functionaries of other departments such as education, agriculture, PANCHAYATS etc., can supplement the efforts significantly. Health education in schools and adult education sessions should incorporate various health problems and their remedial measures.

Promotion of food supply and proper nutrition.

People should be educated about the importance of food value and food hygiene, in view of the wide extent of malnutrition existing among them. Malnutrition among infants and children can be prevented by sound feeding practices, including breast feeding and utilising supplementary nutrition. Moderately and severely malnourished groups should be given special attention. Mothers need to be imparted health education on these aspects.

People should be encouraged to grow with their own efforts foods such as vegetables, fruits, cereals, pulses, etc., in kitchen gardens and through co-operatives or other methods. Income-generating scheme should be initiated and fully utilised.

Inter sectoral co-ordination and linkages with the functionaries of other departments can play a significant role in all these activities and programmes.

Supply of safe water and basic sanitation measures.

Many health problems have their roots in living conditions of the community. Supply of safe water and basic sanitation measures are most important for living in health. The community should be educated about the use of pure and safe water as well as personal hygienes. Systematic survey should be made to identify sources of safe water and carry out tests and analysis of the same. Regular purification of water through chlorination etc., should be arranged.

The setting up of household and community latrines should be encouraged and arrangements should be made for collection and disposal of human and animal wastes. Construction of composting facilities, soakage pits and use of some of waste resources would be helpful. In all these aspects co-operation of there sectors such as works and housing rural development engineering department, village industries agriculture, education etc., would be most vital.

Maternal and child health care and family planning

Maternal care : The problems of maternal morbidity and mortality are serious enough to need special attention. Anti-natal registration and care should cover all pregnant mothers. The deliveries should take place either at home or in institutions with the help of trained dais or female multi-purpose workers. All pregnant mothers must receive necessary doses of tetanus toxoid, and also iron and folic acid supplement for nutritional anaemia.

Infant care: High infant mortality and its attendant causes pose a challenge to public health personnel. The health functionaries, namely the dais, the female health workers and health assistants need to be trained in peri-natal and neo-natal care to tackle this important problem.

During the post natal period, educational efforts should be directed to promote growth monitoring, sound weaning practices and immunisation of children. The organisation of referral system should be strengthened

Care of young children : For promoting health care of children aged 0-5 years i.e., the pre-school children two types of intervention programmes would be needed; (a) prevention and treatment of malnutrition and (b) reduction of mortality due to diarrhoea, respiratory infections, and other infections preventable by Immunization. Malnutrition predisposes children to infection, the morbidity rates being three times higher in malnourished children.

The strategies for reduction of prevalence rate of malnutrition in pre-school children would be (a) to provide nutrition education to mothers, (b) to detect cases of malnutrition and to grade them, (c) to rehabilitate grades I and II by supplementary feeding from home resources, (d) supplementary feeding of grade III cases at sub-centres and (e) referral of grade III cases with diarrhoea or infection to secondary level of care.

The strategies for reduction in infant mortality due to diarrheal diseases and respiratory infections would be :

(a) to educate the mothers how to prevent and treat diarrheal and respiratory diseases.

(b) to train the health functionaries about how to recognize and treat these disorders and to judge which patients would need referral to higher levels of health services.

(c) to create facilities for secondary level care of referred cases ; and

(d) to provide drugs ORs and other supportive measures.

Children under one year of age must be immunised against tuberculosis, poliomyelitis, diphtheria, whooping cough and measles (wherever feasible).

Family Planning : Because of high level of fertility and the relatively larged proportion of people opting for terminal methods, the programme needs to pay more attention to younger couples with low parity for adoption of spacing methods.

Acceptance and continued use of contraceptives can be sustained by effective communication motivation and regular counselling, and improvement,in the quality of service.

Immunization against major infectious diseases

Immunization of children should be organised in a systematic manner. In some endemic areas immunization against cholera and typhoid has also to be considered. Educational activities provision of services and follow up support and care should be ensured. Co-operation from other sectors, such as education, social and women's welfare departments, panchayat and voluntary organisations would be rewarding.

Prevention and control of locally endemic diseases

Several public health programmes have been in operation on a national scale to eradicate diseases such as, malaria, tuberculosis, leprosy, filaria goitre and blindness.

National malaria eradication programme (NMEP) Malaria still continues to be a public health hazard. Stress had been laid on regular fortnightly surveillance of fever cases through multi-purpose workers surveillance workers in all malaria prone areas of the country. Insecticidal spray in areas recording more than 2 cases per thousand per year is envisaged. Laboratory services have been decentralised at PHC for prompt examination of blood smears and institution of immediate treatment.

National Leprosy eradication programme: Leprosy is a health and social problem, with 4 million estimated cases, one-fifth of them among children. The States of Andhra Pradesh, Tamil Nadu, Orissa, West Bengal and Maharashtra contribute 60 per cent of the total cases in India. The target is to arrest the disease in all the known leprosy patients by the turn of the century.

New anti-leprosy drugs have been developed in recent years. Multi-drug treatment can produce complete cure within a period of 2 to 3 years when given in a proper combination. During the Seventh Plan period the target is to arrest that disease in 60% of the total known cases. And 76 highly endemic districts for leprosy will be covered under multi-drug regimen. Health education will be intensified. The progress of the programme will be monitored by a high-powered board every six months at the national level.

National T.B. Control programme: T.B. is a major health problem in India 1.5 per cent of the total population is estimated to be suffering from T.B. of lungs. The main aim of the programme is to detect as large a number of patients as possible and to treat them effectively. For the first time during 1983-84, PHCs were involved in the work of sputum examinations with a target of 50 examinations per month and domiciliary treatment of T.B. patients and BCG vaccination of new borns and infants. During the Seventh Plan case detection and sputum examinations will be extensively continued. The village health guides are also being involved in essential health education activities including creation of motivation to avail of the diagonistic facilities and treatment.

National blindness control programme etc : India has about 9 million blind. In addition 45 million suffer from one or the other visual impairments. The problem is of large magnitude, causing considerable loss to the economy of the country.

A Programme was initiated in 1976 for immediate relief to the needy. Eye care facilities were established at different levels with health education measures. Since the beginning of the programme upto 1986, 2000 PHCs and 404 district hospitals have been provided with opthalmic equipment and staff. Sixty medical colleges, 4 regional institutes and the National Eye Centre have been assisted for equipment and in raising the strength of the faculty members.

Central mobile units deliver eye care to the remote and inaccessible areas. District mobile units are attached with 30 district hospitals to provide comprehensive eye care facilities away from the district hospitals.

The disease of filaria and goitre are endemic in certain states. Necessary measures have been taken to combat the disease.

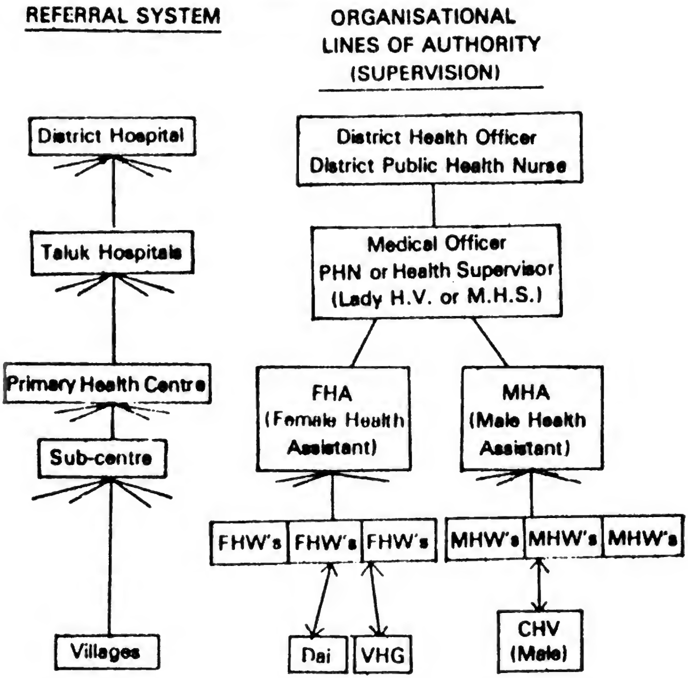
Appropriate treatment of common diseases and injuries

Treatment of common diseases and injuries are to be provided at the sub-centres and PHCs and appropriate referral services are also to be organised. Usage of local remedies and other facilities is to be encouraged by educating people thereon by enlisting the cooperation of other sectors, such as education, panchayat, private medical practitioner of modern and indigenous system of medicine.

APPENDIX — V

HEALTH GOALS FOR 2000 AD — A DISTRICT APPROACH

HEALTH TEAM RELATIONSHIPS



In the Sixth-five Year Plan there is a change of policy in health care services, as follows.

(1) Rural Health Programme is to be built up starting from the village as the base

(2) Primary Health Centres are to serve 30,000 population and subcentres for every 5,000. The villages or a population on 1000 is to form the base unit where there will be a trained VHG chosen by the community, and a trained Dai.

(3) Community Health Centres, one in each Block, with a 30 beded hospital, and a system of referral.

(4) Co-ordination of programmes under education, water supply and sanitation control of communicable disease, MCH and family welfare nutrition and social health, for best results.

(5) Training of medical and para medical personnel in adequate numbers to meet requirements of the programme. All training programmes to include suitable orientation towards rural health care.

(6) Community participation in the health programmes to be encouraged, with the aim of the community managing their own health care programme.

Keeping in mind the goal of 'Health for all by 2000 AD' Health services need to be organized so that Primary Health Care becomes a reality in India, Health services must be.

(1) Available to everyone with priority for weaker sections and those most at risk (e.g. babies and small children)

(2) As close to the needy persons as possible (the VHG and Dai training schemes have this aim)

(3) Organised in co-operation with the people themselves (community based)

In the Government's Multipurpose Worker Is, Scheme VHG Scheme and Dai training Scheme, advantages are;

(1) Each worker has a smaller population to cover, and can deal with most of the health problems found in a particular family.

(2) Trained VHGs and Dais live and work among their own people and so are more acceptable.

(3) There is a team approach, better supervisions, and better care of individuals, families and communities.

(4) The referral system is improved.

DISTRICT POPULATION

PLAN OF ACTION

The Existing and future growth of District population is the best indicator to identify the Health Problems in the District. Key information relating to each indicator has been developed based on the 1981 Census. According to 1981 census District population is 25.76 lakhs. The present District population for the year 1987 and the Projected population for the year 1988 to 1990 and 1991 to 2000 AD was shown in the next page. The present natural increase rate 2.24% is taken in to consideration for calculating the annual growth for the years 1982 to 1990. The growth rate of 1.66% was taken as Criteria for the year 1991 to 2000 AD for arriving the annual projected population as per the D.O.Lr. No. 40024/EE/87 dt. 14-10-87 of the Health Directorate, Hyderabad.

The annual population thus arrived has been taken into consideration for planning Health Services for the indicators 1, 3, 4, 6, 8, 12, 13, 14.

Visakhapatnam District : *1981 Census Population* : 25.76 lakhs

1987 Population : 29, 41, 962

Projected population at the rate of 2.24% annual Increase

1988	1989	1990
30,07,861	30,75,237	31,26,285

Projected Population at the rate of 1.66% annual Increases :

1991	1992	1993	1994	1995
31,78,181	32,30,938	32,84,571	33,39,094	33,94,522

1996	1997	1998	1999	2000 A.D.
34,50,871	35,08,155	35,66,390	36,25,592	36,59,009

The health planning and implementation Cycle/Intervention of the Indicator for the years are arrived by considering the present, District Assessment (1986/1987) Priority Goals/Targets to 1990 and to 2000 A.D. The organisational Structure—Present future i.e., Manpower Infrastructure present and proposed in Multipurpose Health Workers Scheme = and also by Establishment of 30,000 population in Plain area/20,000 population in Tribal area as well as 500 population Sub-centre and 3,000 population sub- centres in Plain/Tribal areas completely in near future.

GOALS. FOR HEALTH AND FAMILY WELFARE PROGRAMME

VISAKHAPATNAM DISTRICT

In the enclosed 17 Indicators explanation of the present services which are being provided in the District are explained in col. 6 and besides the proposed activities from 1988 to 1990 and from 1991-2000 A.D. Col. 7 and 8. The facilities available for Health Care delivery in the district and future needs, Man power, Infrastructure, Resources are detailed in cols. 9, 10, and 11. The objective of detailing these aspects are to use the effective Human Resources to take required actions for the improvement of the Health status of the community.

13R26703.IH BY MR. SRIVASTAVA ON 14.3.89

Sl.No.	INDICATOR	Current level 1986-87.	GOALS 1990	2000	Present Activity.	Intervention with the Health	Plan to deal Problem.			
						Proposed Activities by 1990 (2 Years)	Proposed activities by 2000 A.D. (10 Years)	*Resources available as on 1987*	Addl. resources required.	Estimate of the addl. resources required.
1	2	3	4	5	6	7	8	9	10	11
1.Infant rate.	Mortality	106 as on 1985	87	60 below.	1.Early registration of A. N. Cases.	1.Organisation of Mother Clubs.	1.Compulsory conducting A.N. Clinic Children Clinic.	*Man power ANMs = 305 the HVs 83 & Trained 2520 Dais*	124 ANM posts vacant are to be filled up.	
Prenatal Mortality		53.6 as on 1984.		30-35	2.Providing safe delivery services	2.Conducting of the Well Baby shows.	2.Accident prevention.	*2.for institutional deliveries resources are required.*	11 H.V. posts vacant are to be filled up.	
					3.Infant registration and immunisation services.	3.Nutritional Diet demonstration to Mothers.	3.Prevention of food poisoning			

1	2	3	4	5	6	7	8	9	10	11
					4.Nutritional supplements.	4.Establishment of PHCs for 30,000 pop. in plain Area and PHC. in 20,000 Pop. in Tribal Area and also the Sub-Centres for 5000 Pop. in Plain/3000 Pop. in Tribal Areas.	4.100% deliveries are to be conducted by Trained personnel.			
					5.Treatment of Minor ailments and the referral services.					
					6.Universal Immunisation activities.					
					7.Observance of the Small family norm.					
					8.Participation of the Mahila Mandals	5.Functioning of U.I.P. activities.	5.Effective postnatal care 100%		Supply of delivery kits to ANMs and Dais.	Rs. 10/- per each delivery to the dais instead of present Rs. 3/- is suggested.

1	2	3	4	5	6	7	8	9	10	11
					9.O.R.T. Programme to reduce I.M.R.	6.Increasing the Role of Mahila Mandals.	6.Establishment of full-fledged PHCs in 30000 Pop. in plain area and PHC for 20000 Pop. in Tribal area and 5,000 Pop. for Sub-Centre in Plain and 3000 Pop. in Tribal area.		Pucca Sub-Centre Buildings.	
					10.Involvement of P.M.Ps.	7.100% registration of A.N. and P.N. Cases.			Tables for labour rooms.	
					11.Prevention of early marriages.	8.Low Birth weight education.			7th to 9th month pregnant cases Blue Card with photo is suggested. and mode of payment of compensation. provided by the Govt.	
					12.Reducing of poverty by providing financial					

1	2	3	4	5	6	7	8	9	10	11
					assistance education to the Agricultural labour.	9.Poverty/economic upliftment.			Every village one but attendant.	
2.Crude	Death rate	11.6 as on 1985	10.4	9.0	1.1981 Census Pop. is 25.76 lakhs	1.Strengthening detection and registration.	1.100% Immunisations.	*F.W. = 67 Health Inspectors.*		
					2.1986 Pop. is 28.77 lakhs.	2.Strengthening of the M.C.H. Services.	2.100% M.C.H. Care.			
					3.Detection and registration of Deaths (NRS)	3.85% of immunisations.	3.Reduction of I.M.R. and M.M.R.	*L.D. Computers.*		
					4.Model Death registration (MRS).	4.Protected Water Supply.	4.Establishment of full fledged PHCs in 30,000 Pop. in Plain and 20,000 Pop. in Tribal Area.			
					5.Registration by village Assts.,					

1	2	3	4	5	6	7	8	9	10	11
					Executive Officers of Gram Panchayats.	5.Reduction in M.M.R./I M.R.	5.Each Sub-Centre for 5,000 Pop. in Plains and in Tribals each Sub-Centre for 3000 Pop.			
					6.Registration work by Health Assts. of Municipalities.	6.Control of Communicable diseases. and Epidemics.				
					7.Involvement of the leaders.	7.Active School Health Services.	6.Prevention of occupational diseases.			
					8.Education on the dreadful diseases to the community as well as to the leaders.	8.Increasing the involvement of the leaders.	7.Educating the public about the dangers of Snake bite and Dog Bite.			
					9.Dangers of the non-communicable diseases.	9.Increased educational efforts on dreadful diseases				

1	2	3	4	5	6	7	8	9	10	11
						to the Community as well to the leaders.	9.Prevention of food-poisoning.			
						10.Dangers of the non-communicable diseases.				
						11.Prevention of Mother accidents.				
3.Pre-School Child (1-5 Yrs.) Morta-lity.		25.3 as on 1985	15-20	10	1.Immunisation to children 1-5 Yrs.	1.Distribution of Care food in the Children's Clinic to the Pre-school children.	1.100% Coverage of Pre-School Child Care.	*Man Power* *A N.Ms. 305* *H.Vs. = 83 Trd. dais 2520*	Man power filling of the vacant posts of ANMs and H.Vs.	Construction of Buildings and equipment for every Sub-Centre.
					2.Frequent of Minor ailments.	2.Survey & Registration of Children Age Group. (1 to 5 yrs.)	2.Small family norm.			2.Quarters for staff.
					3.Referral Services.	3.Increasing the role of parents as				

1	2	3	4	5	6	7	8	9	10	11
						well as teachers and awareness of the Diseases.	3.Screening of films. on the Diseases of Pre-school Age.			3.Supply of Sub-Centre equipment.
					4.Supply of Nutritional supplements.	4.A.V. Aids use on Healthy habits.	4.Training to teachers.			
					5.Under I.C.D.S. Programme Angawadi Schools are existing.	5.Full Coverage of the Anganwadis.	5.Demonstration of the causes of diseases and its prevention.			
					6.Observing of Family Planning methods.	6.In organised Sectors education to the workers.	6.Debates			
					7.Community Education on Diseases causing Pre-school Mortality.	7.Training to mothers.	7.100% involvement of C.H.Gs. and trained dais for early detection and treatment of Common Communicable			

1	2	3	4	5	6	7	8	9	10	11
							diseases among the children.			
					8.Education to parents.	8.Demonstrating the causes of diseases and its prevention to the mothers.	8.Boosterdose of immunisation.			
						9.Debates.				
						10.Disseminating knowledge of various mortality rates.				
4.Maternal Mortality rate.		4 to 5 as on 1976	2-3	2 below	1.A.N. Care and P.N. Care.	1.Supply of Kits to all the trd. personnel.	1.100% MCH Care and immunisation	*Man Power* *ANMs = 305* *HVs = 83*	Man power Filling up of the vacant posts of ANMs and H.V.	
					2.Safe delivery.	2.Refills of the kit is to be supplied connected to delivery kit.	2.Effective supervision.	*Trained Dais = 2520*		
					3.Detection of minor and					

1	2	3	4	5	6	7	8	9	10	11
					major disorders during pregnancy.	3.Supply of records and registers.	3.Full-fledged establishment PHC for 30,000 Pop. PHC for 20000 Pop. in Tribal areas and Sub-Centre for 5000 Pop. in plains Sub-Centre for 3000 Pop. in tribal area.			
					4.Referral to the Medical Institutions.	4.Establishment of PHCs in 30,000 population in plain, 20,000 Pop in tribal area and 5000 Pop. Sub-Centre in plains and 3000 in tribal areas.				
					5.Participation of Mahila Mandals.					

1	2	3	4	5	6	7	8	9	10	11
					6.Education to the Maternal mother-hood on causes of the maternal mortality through A.V. Aids.					
					7.Observance of small family norm.	5.Increasing the participation of the Mahila Mandals.				1.Provision of lady attainders to all the ANMs and H.Vs.
					8.Peoples participation in reducing M.M.R.	6.Awarding of appropriate rewards to the Mahila Mandals.				2.The ratio of deliveries to the ANMs to be reduced present 1:10 is to be reduced to 1:5 feasibility.
						7.Adoption of specific village by voluntary organisation.				

1	2	3	4	5	6	7	8	9	10	11
5.Life Expectancy at birth Male Female		55.10 54.30 As on 1985.	57.6 57.1	64 64	1.Effective Primary Health Care.	1.Continued efforts of Primary Health Care.	1.Continued efforts of Primary Health Care.			
					2.Education of the target population about their upliftment in social, economic styles of life.	2.Continued education to the target population about their upliftment in social economic aspects of targets Pop.	2.Continued education.			
					3.Eliminating unwanted births.	3.Education of eligible couples to eliminate unwanted births.	3.100% coverage of immunisation.			
					4.Intensifying the immunisations.	4.85% coverage of immunisations.	4.100% MCH Services.			
					5.Maternal and child Health Care.	5.90% of MCH Care.	5.Continued small family norm education.			

1	2	3	4	5	6	7	8	9	10	11
					6.Observance of small family norm.					
					7.Safe Water.					
					8.Environmental sanitation.	6.Observance of small family norm.	6.Establishment of full-fledged PHCs in 30000 Pop. in plain area, 20000 Pop. in tribal areas and also the Sub-centre for 5000 Pop. plains/2000 Pop. in tribal area.			
					9.T.T. to agricultural labourers.	7.Industrial safety.	7.Industrial safety.			
					10.Education of Calorie valve of the food intake.	8.Environmental pollution.	8.Environmental pollution control.			
						9.Workers education.	9.Workers Education.			

1	2	3	4	5	6	7	8	9	10	11
						10.Accident prevention. 11.T.T. to agricultural labourers.	10.Accident prevention. 11.T.T. to agriculture labourers. 12.Income generating Schemes to cross above the poverty line. 13.Education of calorie of food intake.			
6.Babies birth below	with weight 2500 gms (percentage)	25 as an 1985	18	10	1.For every 5000 to 10000 Pop. are one Sub-centre to cater needs of pregnant women One ANM is stationed at present. = Immunisation.	1.AN & P.N. Care intensification 75%	Reducing 18% by intensification of all activities proposed by 1990 in Col. 7.	*1.Presently there are 78 Sub-Centres Buildings out of 305 Sub-Centres existing.*	1.To accommodate present 305 Sub-Centres 265 weighting machines and 265 Examination tables are needed.	
					2.Providing the A.N. Care	2.Intensification of immunisation of A.N. mothers 100%.		*2.Presently 40 weighing machines are available in 40 Sub-Centres and also 40 examination tables only.*	2.As per M.P.W. Scheme S.Cs were sanctioned and so additional 115 weighing machines and 115 tables are needed.	
					3.Immunisation.	3.More nutritional				

1	2	3	4	5	6	7	8	9	10	11
						Education and Supplements.		*Construction of Sub-Centre Buildings.*	3.Construction of Sub-Centre buildings.	
					4.Nutritional supplements.	4.100% reference services.	1	*4.Sanction of Sub-Centres and new P.H.Cs.*	4.Sanction of new PHCs, & Sub-Centres to accommodate 420 MPHW (F, another 220 new kits are to be provided.	
					5.Conducting of A.N. Clinics.	5.100% safe deliveries.		*5.Presently 200 delivery kits are cvailable. Refills are to be supplied for all the 200 kits.*		
					6.Referring the major disordered cases.	6.Intensive motivation.				
					7.Providing safe delivery services.	7.Uplifting of low economical status.				
					8.Postnatal	. . .				

1	2	3	4	5	6	7	8	9	10	11
					care 9.Family Welfare. 10.No payment is being made to the Dais for delivery charges.	8.Each PHC for 30000 Pop. in plains Each PHC 20000 Pop. in tribal area. 9.Reducing 25% to 18% by 1990.		*6.Payment of delivery charges to all the Trained Dais per delivery Rs. 3/-* *Man Power. ANMs - 305 HVs - 83 Trd dais 2500 FPHIs : 67 BEEs 25*		
7.Crude Birth Rate.		30.8 as on 1984.	27.0	21.0	1.Intensive F.P. Motivation.	1.Intensive F.W. Motivation.	In addition to the Activities proposed in Col. (7) full-fledged P.H. Centres for 30,000 Pop. in			

1	2	3	4	5	6	7	8	9	10	11
							plain areas and PHCs in 20,000 Pop. in Tribal areas and also establishment of each sub-centre for 5000 population in plains and sub-centre for 3000 population in tribal areas.		Supply of birth registers and other forms.	
					2.Increasing awareness on birth rate.	2.Present C.P.R. 40% to be increased to 42% to achieve 27 Birth rate.				
					3.Training of Village leaders.	3.Increasing of cash incentives to the acceptors of F.W. Methods.				
					4.Community Participation.	4.Intensive follow-up care by Manpower available in 30000 population each PHC and MPHW (F) and (M) for 500				

1	2	3	4	5	6	7	8	9	10	11
					5.Achieving 1987-88 Family Welfare targets (100%) 6.Registration of births. 7.Utilising the services of the L.D. Computers.	population. 5.Utilising the services of the L.D. Computers.				
8.Effective Couple Protection (percentage)		38.82 as on 31-3-87	42.00%	60%	1.The present C.P.R. is 38.82%	1.The difference of 3.18 C.P.R. Increase will be made by increasing district targets under all F.W. Methods.	1.In addition to the activities proposed in (Col.7) full-fledged P.H. Centres for 30000 population in Plains areas and PHC for 20000 population in Tribal areas and also			

1	2	3	4	5	6	7	8	9	10	11
							establishment of 5000 Pop. in plains and Sub-Centre for 3000 population in Tribal areas.	*Man Power* *ANMs 305* *HVs 83* *FPHIs 67* *BEEs 25* *H.S. 35* *Medical Officers 70*	Man Power Filling up of the Vacant posts of ANMs/H. Vs.	
					2.Sterilizations. 35.04%	2.Achievement of the increased targets.	2.Presently male workers are looking after the Malaria work.		Filling up of the vacant posts of C.A.Ss.	*Provision of the* Budget for 1.Stickers 2. Cinema Slides
					3.IUDs = 1.89%	3.Extension Education and Media activities.	3.Income generating Schemes improves F.W. methods acceptance more.			3.For purchase of role films 35 M.M.
					4.Nirodh users/1.35%	4.Review Meetings.				4.Purchase of Bromide paper and developers
					5.Oral Pill Distribution = 0.54%	5.Involvement of other development departments.				

1	2	3	4	5	6	7	8	9	10	11
					6.Achievement of Targets of 1987-88 (100%)	6.Knowledge of F.W. methods				
					7.Intensive Mass Education and Media activities.					
					8.Review of the F.W. Performance by monthly Meetings.					
					9.Involvement of the other development departments.					
					10.Knowledge of F.W. methods.					
					11.Disadvantages of early marriages.					

1	2	3	4	5	6	7	8	9	10	11
					12.Increasing of number of Service Centres so as to provide F.W. Service at the door steps.	7.Encouraging late Marriages.				
					13.Marriage education Girls = 18 years. Boys = 21 years.	8.Immunisation Clinics at the door steps.				
					14.Protection of young couples.					
9.Net Reproduction Rate (N.R.R)		1.34 as per 1985.	1.17	1.00	1.Education of the eligible couples about late marriages - Girls 18 yrs. Boys 21 Yrs.	1.Education of the Eligible Couples about late Marriage Girls - 18 Yrs. Boys 21 Yrs.	1.Education of eligible couples about the marriage of children.			

1	2	3	4	5	6	7	8	9	10	11
					2.Observance of Small family Norm irrespective of Sex. 2 Children either Male or Female.	2.Either Male or Female child is the same.	2.Education on Male or female child is the same.			
					3.Increasing C.P.R.	3.Achieving of C.P.R. 42% from present level of 38.82%	3.Achieving of C.P.R. 60%			
					4.Achieving of 1987-88 for Targets.	4.Achieving of increased F.W. Targets.	4.Achieving of increased F.W. targets.			
					5.Either male or female in some attitudinal change of eligible couples.					
10.Growth Rate		2.24 as on 1981.	1.66	1.20	1.Achieving of 1987-88 F.W. Targets (100%)	1.Achieving of the increased F.W. Targets.	1.Achieving the increased F.W. targets.			

1	2	3	4	5	6	7	8	9	10	11
					2.Provision of Service amenities to all the workers.	2.Improvements in the provision of Services.	2.By increasing the Service Centres.			
					3.Effective supervision.	3.Increasing the Service Centres.	3.Education to the eligible couples on population increase and adoption of F.W. Methods.			
					4.Execution of M.E.M. activities.	4.Education to the eligible couples on population increase and adoption of F.W. Methods.				
					5.Increasing the Services Centres.					
					6.Education to the eligible couples on population					

1	2	3	4	5	6	7	8	9	10	11
					increase and adoption of F.W. Methods.					
11.Family Size.		3.8 as on ; 1985.		2.3	1.Education to the eligible couples about small family. 2.Encouraging late marriages. 3.Contraception practice. 4.Coordination of other developmental Departments.	Intensification of the current activities.	Intensification of the proposed activities.			
12.Pregnant mothers receiving ante-natal care %		50 to 60 as on 1985.	60-75	100	1.Registration of A.N. Mothers by A.N.Ms.	1.To cover upto 75%. A.N. Care intensive efforts will be taken up by means of implementation of M.P.W. Scheme.	1.Coverage of 100% A.N. Care	*1.Supply of the % equipment like Examination Table/Weighing Machines/Delivery /Tables/Labour room/equipment*		= Budget provision for preparation of Cinema Slides.

1	2	3	4	5	6	7	8	9	10	11
					2.Domiciliary A.N. Care visits by A.N.Ms.	2.100% T.T. Injection through Universal Immunisaticns.	In addition to the activities in (Col. 7) full-fledged establishment of 30,000 Pop. PHC in Plains area and 20000 Pop. in tribal as well as 5000 Pop. Sub-Centre in Plains/3000 Pop. S.C. in Tribal areas.	*2.Construction of pucca building and quarters to the A.N.Ms*		35 M.M. films supply on A.N. Care.
					3.Administering of T.T.	3.Establishment of 30,000 Pop. PHCs in Plain/20000 Pop. in Tribal areas.		*3.Provision of female attendant to each MPW. (F).*		
					4.A.N. Care visits (Supervision) by H.Vs.	4.Establishment of 5000 Pop. one S.C./Plains /3000 Pop. S.C. in tribal areas.				
					5.A.N. Clinics.					
					6.Sub-Centre					

1	2	3	4	5	6	7	8	9	10	11
					visits by the. Medl. Officer. 7.Distribution of Iron folic acid Tabs. to A.N. Cases. 8.Preparation of A.N. Cases for safe delivery. 9.Domiciliary deliveries as well as institutional deliveries. 10.Educating Mothers mothers for F.W. methods. 11.Referral Services.					

1	2	3	4	5	6	7	8	9	10	11
13.Deliveries by Trained Birth Attendants %		50% by 1985.	80	100	1.Guidance to the trained Dais by the A.N.Ms.	1.Improvement from the present level of 50% to 80%.	1.Improvement further to 100%.	*Trd. dais = 2500*		
					2.Supervision of the deliveries conducted by Trained Dais by H.Vs.	2.Compulsory payment of delivery charges to all the trained dais.	2.Carrying out of the activities.			Payment of Rs. 3-00 (Rupees Three) to each delivery conducted by Trained Dais.
					3.So far available kits were supplied to the Trained Dais.	3.Supply of the refills to the kits of all Dais.	3.Compulsory payment of delivery charges to the Trained Dais.			
					4.2500 Trained dais are available.	4.Involvement of Dais in F.W. motivation.	4.100% participation by Trained dais.			
					5.Payment of Rs. 3/- per each delivery to Dais is not					

1	2	3	4	5	6	7	8	9	10	11
					being paid.	5.More participation by trained dais.				
					6.Education of Safe delivery to the A.N. Cases.	6.For each village one trained Dais is needed.				
					7.Dais are participating during A.N. Clinics.					
					8.Involvement of Mahila Mandals.	8.Door steps services like, immunisation to A.N.Mothers.				
					9.Immunisation to A.N.Mothers at their door steps.	9.Availability of vaccines.				
					10.Awareness to A.N.Mothers.					

1	2	3	4	5	6	7	8	9	10	11
14.Immunisations % of Coverage T.T. for pregnant women.		99% as on 1986-87.	100	100	1.Detection and administering T.T. to the AN Mothers.	1.Improvement in A.N. Care registration.	1.Further improvement in A.N. case registration.	*Man Power ANMs = 305 HVs = 83 (Team work) Out of 26 PHCs 22 Refrigerators were supplied to 22 PHCs out which 8 are not working. Out of 8 Govt. Hospitals 6 Refrigerators were supplied and 4 are of not working. Out of 5 Refrigerators in DM&HO&S office one is not working. I L.Rs. were supplied to 23 PHCs.*	Man power 124 ANM posts and 11 H.V. posts are to be filled up.	
					2.Creating awareness among A.N.mothers					

1	2	3	4	5	6	7	8	9	10	11
					about T.T. by A.V. Aids.	2.100% T.T. to A.N. Mother.	2.100% T.T. to A.N. mothers.		= For all SubCentres of Buildings.	Supply of films on Immunisation on DPT/T.T.
					3.Generating Motivation through publicity and print media.	3.Intensive motivation.	3.Intensive Educational activities.			
					4.Organising the Well Baby Clinics.	4.Organising Well Baby Clinics.	4.Organising Well Baby Clinics.			
					5.Holding of the Mother Clubs.	5.Holding of the Mother Clubs.	5.Holding of Mother Clubs.			
					6.Distribution of Iron & Folic acid (.5 mg)	6.Involvement of Local talented people.				
					7.Maintenance of Cold Chain from Dist. to Periphery.	7.Involvement of widows who are having full access to the Village Mothers.				

1	2	3	4	5	6	7	8	9	10	11
I.T.T. for School Children			100	100	1.Present achievement is 88% and 102% respectively.	1.Achieving 100% coverage.	1.Carrying out of the proposed achievements (Col. 7) & full-fledged establishment of PHCs for 30000 population in Plain areas and for 20000 Population tribal areas.	*Man power ANMs 305 HVs 83 FPHS 67 (Team work)*	Man power ANMs 124 H.V. posts 11 are to be filled up Male comp. of MPW work has to be filled up.	Construction of pucca buildings for Sub-Centres and quarters to the staff.
10 Years 88% 16 Yrs as on 86-87.					2.Involvement of Parents and teachers in the Immunisation Programme.	2.Strengthening of parent-Teacher associations in Schools.	2.Each SubCentre for 5000 population plain areas Each SubCentre 3000 in tribal areas.			
					3.Survey and registration of children.	3.Filling up of the posts of ANMs that are vacant.				
					4.Education in Schools through films.	4.Filling up of the H.Vs posts that are vacant.				

1	2	3	4	5	6	7	8	9	10	11
					5.Involvement of the Physical Edn. teachers.	5.Intensive Education in schools.				
					6.Maintenance of Cold chain from District to the Periphery.	6.Involvement of the N.C.C. and the School Teachers.				
D.P.T. (Children) below 3 Yrs.		103% as on 86-87..	85	85	1.Enumeration & Administering of D.P.T. to the Age Group.	1.Enumeration 100%.	1.Enumeration 100%.	*Man power ANMs 305 HVs 83 FPHC 67 (Team work)*	Man power ANMs 124 and HVs 11 Posts are to be filled up. Male Component MPW Workers are to be filled up.	Construction of pucca building for Sub-Centres and quarters to the staff.
					2.Education to the parents.	2.Education to the parents.	2.Establishment of 30000 population PHCs in plains.			
					3.Wide publicity of dangers of 3 Child-hood					

1	2	3	4	5	6	7	8	9	10	11
					diseases.	3.Wide publicity of dangerous of three Childhood diseases.	3.Establishment of 20000 population in agency area. Estt. of 5000 Pop. sub-centres in plain Estt. of 3000 Pop. sub-centres in Tribal Area.			
					4.Screening of films on D.P.T.	4.Screening of Films on DPT.				
					5.Maintenance of Cold chain from District to periphery.	5.Stickers; Wall painting Hoardings erection on Diphtheria Hertusis and Tetanus.				
1.Polio (infants) below 1 year.		75% as on 86-87.	70	85	1.Enumeration of Infants.	1.100% Enumeration of infants.	Carrying out of the activities mentioned in Col. 7 and the full fledged establishment of			

1	2	3	4	5	6	7	8	9	10	11
							PHC for 30000 Population in plain areas and PHC for 20000 Population in Tribal area and also establishment of Sub-Centres for 5000 Population in Plain and SubCentre for 3000 population in tribal areas.	*Man power ANMs 305 H.Vs. 83 (Team work) Some old Vehicles of the PHCs were condemned so replacement of Vehicles is needed for improving percentage. Male Component under M.P.W. Scheme is to be full,*	Man power 124 ANMs and 11 HV posts are to be filled up.	
					2.Education to the Mothers on Polio diseases and importance of polio vaccine. 3.U.I.P. in Visakhapatnam urban area and in PHCs	2.100% administration of Polio vaccine.				

1	2	3	4	5	6	7	8	9	10	11
					Aganampudi & Sabbavaram & in R.H.C.Simhachalam.	3.Intensive education of parents by films, group discussions, group talks,and by pictures of polio diseased children.				
					4.Maintenance of Cold chain from District level to the Periphery.					
B.C.G. of Infants under 1 Year.		103% as on 86-87.	80	85	1.Enumeration of Infants.	1.Enumeration of 100% Infants	1.Carrying out of the activities under (Col. 7) and the full-fledged establishment of PHCs for 30000 Pop. in plain area and PHC for 20000 Pop. in Tribal areas and also the			

1	2	3	4	5	6	7	8	9	10	11
							establishment of SubCentre for 5000 Pop. in plain and SubCentres for 3000 Pop. in Tribal area.	*Man power ANMs 305 HVs 83 (Team work) Male Component under M.P.W. Scheme is to be full.*	Man power 124 ANMs and 11 H.Vs. posts are to be filled up.	Supply of films in Tuberculosis disease.
					2.Education to mothers by group talks/films on tuberculosis diseases and importance of B.C.G. Vaccine.	2.Intensive Education to Mothers.	2.Continuation of U.I.P.			
					3.Universal Immunisation Programme.	3.Involvement of Leaders and increasing the Community participation.				
					4.Maintenance of Cold Chain from District to the					

1	2	3	4	5	6	7	8	9	10	11
					Periphery.	4.Commencing of U.I.P. in the Dist. in a full fledged manner.				
D.T. (new School Entrants 5-6 Yrs.)		116% as on 86-87.	85	85	1.Enumeration of age-group children.	1.100% Enumeration of age group children.	Carrying out of the activities mentioned in (Col. 7) and the full fledged establishment of PHCs for 30000 Pop. of plain areas and PHCs for 20000 Pop. in Tribal areas also Estt. of Subcentres for 5000 Pop. in plains & SubCentres for 3000 Pop. in Tribal area.	*Man Power ANM 305 HVs 83 HAs FPHIs 67 (Team work) Male Component under M.P.W. is to be in full.*	Man power 124 ANM 11 HV posts are to be filled up.	
					2.Administering of D.T.	100% administering of D.T.				

1	2	3	4	5	6	7	8	9	10	11
Typhoid (New School) enters 5-6 years.		1139 as on 86-87	85	85	1.Enumeration of Age-group children.	1.100% enumeration of Age-group children.	Carrying out of the activities mentioned in (Col. 7) and the full fledged establishment of. PHCs for 30000 population in Plain area and PHC for 20000 population in tribal area and also establishment of SubCentres 5000 Population in plains and SubCentre for 3000 Population in tribal areas.	*Man power ANM 305 HVs 85 HAs FPHI 67 (Team Work) Male components sanctioned under M.P.W. Scheme is to be in full.*	Man power 124 ANMs 11 H.Vs are to be filled up.	
					2.Administering of vaccine.	2.100% administering of Typhoid vaccine.				
					3.Contacting of					

1	2	3	4	5	6	7	8	9	10	11
					teachers/parents	Strengthenning of parent/teachers associations.				
					4.Organisation of parent/teachers association.	4.Education of parents/teacher thro' films and by group talks.				
					5.Education to parents & teachers on Typhoid incidence and use of the immunisation.	5.Involvement of C.H.Gs.				
					6.Screening of the films on immunisation.					
					7.Involvement of C.H.Gs.					
					8.In Schools protected water supply in a clean part with lid.					

1	2	3	4	5	6	7	8	9	10	11
					9.Social habits of taking clean water.					
					10.Wide publicity by mike, films, tom-tom, posters, pamphlets about the sources of diseases. Dangers of taking polluted water.					
					11.Maintenance of Cold chain from district to the periphery.					

1	2	3	4	5	6	7	8	9	10	11
15.Leprosy percentage of disease arrested cases out of those detected		40 as on 1985	60	80	1.Early detection and registration of Cases by S.E.T. Centres.	Intensifying the activities proposed in Col. 6 and;1.Increased awareness about leprosy.	1.Intensifying the activities proposed in Col. 7	*Man power* *Z.L.O. 1 MOs 8* *S.A. 1* *Physiotherapist* *5 N.M.S. 28* *N.M.As. 138* *H.Es 2 Lab.* *Technicians. 7* *L.D.Comp. 2*		Supply of Films on Leprosy.
					2.Early Treatment.	2.Promotion of early detection and regular treatment.	2.Intensifying the Media activities.			
					3.Six Leprosy Control Units in Rural areas.	3.Promotion of the Voluntary reporting both by Male/Female children.				
					4.Three Urban Centres are functioning.	4.Educate the community especially the effected families for social				

1	2	3	4	5	6	7	8	9	10	11
						acceptance of the Leprosy patients and support for their treatment.				
					5.40 Temporary Hospitalisation Ward Beds. 6.Voluntary Organisations existing. 7.Multi-Drug Therapy is in force since 1984 (UNICEF) 8.Detection in Schools. 9.Health Education. 10.Rehabilitation					

1	2	3	4	5	6	7	8	9	10	11
					11.Physiotherapy 12.Media activity.					
16.T.B. Percentage of disease attested cases out of those detected		3.60 as on 1985.	75	90	1.Dist. T.B.Centres Unit existing.	1.Increasing the awareness of the disease.	Intensifying the Activities proposed in Col. 7.			Supply of films on Tuberculosis.
					2.One Mass Miniature Radiography Mobile Unit is functioning.	2.Promotion of early detection and regular treatment.				
					3.Mass Microscopical Sputum Examination.	3.Promotion of the Voluntary reporting by both Male/Female and also children.				

1	2	3	4	5	6	7	8	9	10	11
					4.Domiciliary Treatment through the A.N.Ms under the guidance of Medical Officers.	4.Community Education.				
					5.Administering of BCG Vaccination.	5.Supporting the Supervision.				
					6.Health Education.	6.Supplies are to be regular (Medicines).				
					7.Conducting of the Review meetings.	7.Organising the Training Programmes for Field workers.				
					8.Publicity by A.V. Aids and Media Activities.					
					9.Treatment of defaulters are encouraged to					

1	2	3	4	5	6	7	8	9	10	11
					continue the Treatment. 10.Education to the Industrial workers, involvement of Management is required. 11.Milk and Groundnut consumption by the patients.					
17.Blindness Incidence of %		1.0 as on 1985	0.7	0.3	1.To prevent blindness among the children 6 months to 5 years Vit. A concentrated solution is being administered with the interval of 6					

1	2	3	4	5	6	7	8	9	10	11
					months as per Schedule.	Intensification of the activities of Col. 6. 100% achievement of Vit. 'A' administration.	Intensification of the activities of Col. 6 and 7		Equipment to be supplied to all the Ophthalmic Assts. working in P.H. Centres.	
					2.Mobile camps (Eye) are being organised by the Mobile Unit stationed at K.G. Hospital, Vizag.	Increased facilities in P.H.Centre.Food, Intake Education and the availability of Nutritional ingredients; Education to the General public.	100% achievement in Vit. A administration.			
					3.Opthalmic Assts are in position in some of the PHCs in the District for detection of Blindness cases.	Increasing of the awareness of the disease.	Increased facilities in P.H. Centre.			

1	2	3	4	5	6	7	8	9	10	11
					4.In agency areas eye camps are being organised for early detection and treatment of Blindness. 5.Covered under School Health Programme also. 6.Publicity by Films. 7.Referral services. 8.Milk/A.&D.Campsules Use. 9.Intake of Food like Milk/Liver and fish.					

TASKS AND EVALUATION: The activities being carried out under each Health Indicator (Indicator 1 to 17) are detailed in each statement enclosed for each of the Indicator. The activities proposed from 1988 to 1990 and the activities proposed for 1991 to 2000 A.D. are also given so as to achieve the Goals set for Health and Family Welfare Programmes as per the Directorates D.O.Lr. No. 40124/EE/87 dt. 14-10-87. The Programme Officers, Medical Officers and the Para-Medical Personnel are in position of the job designs and Monitoring of the performance will be made from time to time so as to achieve the Short-term goals (1987 to 1990) and the Long term goals (1991 to 2000 A.D.). As desired by the Directorate in Planning the current and future goal achievement in each of the Indicator; the statistics available in this office as well as the data pertaining to the Andhra Pradesh State are taken into consideration. The population of Visakhapatnam District as per 1981 Census is 25.76 Lakhs. The following is the breaking of RURAL/URBAN/TRIBAL Population.

= RURAL = 14.16 Lakhs

= URBAN = 8.06 Lakhs 25.76 lakhs.

= TRIBAL = 3.54 Lakhs

Based on the 1981 Census Population the Population of the Visakhapatnam District (RURAL) and (Urban) is arrived to 1987 and the projected Population to 1990 and 2000 A.D. is also arrived at the Natural increase of population (2.24%) for the years 1982 to 1990 and ban 1991 to 2000 A.D. at the rate of 1.66% annual increase so as to enable to know the future Health needs and Man power requirements as well as the resources as to take the guidance in fixing yearwise annual targets taking the age structure of the population in the District pertaining to the indicators.

1	2	3	4	5	6	7	8	9	10	11
					1981 Census	Estimated population		Population increase at 2.24% annual		
						1987		1988	1989	1990
VISAKH PATNAM DIST.					14.16	16.05		16.36	16.67	16.98
(RURAL)					Lakhs	Lakhs		Lakhs	Lakhs	Lakhs
VISAKHAPATNAM DIST.					8.06	9.14		9.32	9.50	9.68
(URBAN)					Lakhs	Lakhs		Lakhs	Lakhs	Lakhs

Population increase at 1.66% annual increase from 1991 to 2000 A.D.

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 A.D.
VISAKHAPATNAM DISTRICT	17.16	17.44	17.72	18.00	18.28	18.56	18.84	19.12	19.40	19.68
(RURAL)	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs
VISAKHAPATNAM DISTRICT	9.84	10.00	10.16	10.32	10.48	10.64	10.80	10.96	11.12	11.28
(URBAN)	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs	Lakhs

8.FEED BACK = The feed-back (knowledge of results) is important to monitor the Health and Family Welfare Programmes at the District level and also to achieve the yearly targets. For this purpose, the key information required for each indicator will be obtained from the Medical Officers and the suggestions for improving the performance will be supplied to the Programme Officers as well as the Medical Officers. The problems and future course of actions will be discussed in the Monthly review meetings of the Programme Officers/ Medical Officers / Field staff and appropriate steps will be taken in respect of the performance increase, supply of organisational resources and quality of services and follow-up care and maintenance of Cold Chain aspects. etc.

Training needs of the Medical Officers / Supervisory staff and Field Staff will be identified and appropriate Training programmes like Supervisory Training, Refresher courses will be taken up to up-date the knowledge on Health and Family Welfare needs.

Setting up of the District Health Teams for effective services to the Community will also be made in due course.

SUGGESTION OF THE DISTRICT MEDICAL AND HEALTH OFFICER : VISAKHAPATNAM.

To provide package of Health Services to the community under preventive, Promotive, curative aspects the following are suggested.

1.All the Health Services facilities are to be merged and monitored by a single organisation at the level of Primary Health Centre, District and State level so that supply of Men/Material/payment of salaries and other allowances are Uniform and attended to at Peripheral level and District level efficiently. At present payment of salaries is controlled by different Heads.

2.Providing buildings, Electricity, water supply and sanitary conditions in the peripheral level.

3.For Quick mobility and to save time Transport facilities are to be provided in Full. This can be at the level of individual also by providing loans.

4.A regular supply of Vaccines drugs and disinfectants according to the demand.

5.Providing of immunisation Services in a Permanent feature by establishing local Immunisation clinics so that the knowledge of importance Immunisation and the Practice of accepting Immunisations in a routine manner by the community is developed.

6.Protected water supply and sanitation is to be improved.

7.Supply of Vitamins 'A' and Iron and Folic Acid Tablets can be expanded by expanding the I.C.D.S Programme through out the district.

8.Improvements of registration of Vital events :-

Voluntary reporting of events from the community is more desirable. For this purpose a token incentive of Rs. 5/- (Rupees five) for each vital event is suggested to the parent or the informant besides improvement in Birth and Death detection by the field staff.

9.To improve community education for healthful behaviour of the community supply of A.V. Aids with Symbols and pictures (Pictorial Molds) is required to educate illiterate population-

Supply of 16 M.M. Films depicting 6 killer diseases so that good response from the community is possible. This will Generate motivation in illiterate masses in a speedy manner.

10.Health Education is to be democratised and given equal importance in all the National Health Programmes as a committed Service.

11.Training, re-training and Cyclical re-training programmes are suggested to the field staff to improve their knowledge and skills from time to time for efficient discharge of their duties.

12.For efficient Management of Health and Family Welfare Programmes, Management Education be expanded.

13.Supply of 16 M.M. Films depicting 6 killer diseases so that good response from the community is obtained. This will also generate motivation in the illiterate masses in a speedy manner.

THE END OF THE FILE ON 16.3.89

BIBLIOGRAPHY

Alanberg Scrimshaw, N.S. and Call, D.T.(Ed.)	*Nutrition, National Development and Planning*, M.I.T. Press, 1973.
Alan Berg (Ed.)	*Nutrition Factor*, Brookings Institution, Washington, 1973.
Alex, A.V.	*Human Capital Approach to Economic Development* (Metropolitan, 1983).
American Economic Association and the Royal Economic Society	*Surveys of Economic Theory—Resource Allocation*, Vol, III, Surveys IX-XIII, Macmillan, London, 1967.
Asok Mitra	*India's Population : Aspects of Quality and Control*, Abhinav Publications, New Delhi, 1978.
Bhagawati, J.	*The Economics of Underdeveloped Countries*, World University Press, 1986.
Bhagoliwal, S.N.	*Economics of Labour and Social Welfare*, Durga Printing Works, Agra, 1966.
Bhandarkar, S.	*Cost-Benefit Analysis of Family Planning Programme in Andhra Pradesh State*, Government of Andhra Pradesh, (Mimeo).
Bose, A., Asok Mitra, Desai, P.B. and Sharma, J.N. (Eds.)	*Population in India's Development 1947-2000*, Vikas Publishing House (Pvt.) Ltd., 1974.
Bose Ashish, D.B. Gupta, M.K. Premi, (Eds.)	*Social Statistics : Health and Education* (Vikas Publishing House, 1982).

Bryant, J.	*Health and the Developing World*, The Rockfeller Foundation, Cornell University Press, Ithaca, 1969.
Byrd (Ed.)	*Health*, W.B. Saunders & Co., 1963.
Center for Policy Research	*Population, Poverty and Hope*, Uppal Publishing House, New Delhi, 1983.
Chandrasekhar, S.	*Infant Mortality, Population Growth and Family Planning in India*, George Allen & Unwin Ltd., 1972.
Charan Wadhva	*Some Problems of Indian's Economic Policy*, McGraw Hill Publishing Co., Ltd., New Delhi, Second Edition, 1977.
Cooper, M.Y. and Culyer, A.J. (Ed.)	*Health Economics*, Penguin Modern Economic Readings, 1973.
Dandekar, V.M.	*Poverty in India*, The Ford Foundation, New Delhi, December, 1970.
Desai, P.B.	*Linkages : Population and Development* Institute of Economic Growth Delhi, (Mimeo).
Dorfman, R.Ed.)	*Measuring Benefits of Government Investments*, papers presented at a conference of Experts held on November 7-9, 1963, The Brookings Institution, Washington DC 1966.
Gopalan, C., Ramasastri, B.V. & Balasubramanyam, S.C.	*Nutritive Value of Indian Foods*, National Institute of Nutrition, ICMR, Hyderabad, 1977.
Gunnar Myrdal	*Asian Drama, Vol. I, II & III*. The Penguin Press, 1968.
Heller, W. (Ed.)	*Perspectives on Economic Growth*, Vintage Books, New York, 1968.
Inter-Departmental Committee on	*Nutrition for National Defence UNICEF, Manual for Nutrition*, National Institute of Health, Bethasda, 1963.

Jellife, D.B. The Assessment of the Nutritional Status of the Community, World Health Organization, 1966.

Jul Prite, P.S. and Kowala S. Jaya Rao *Proceedings of the 1st Asian Congress of Nutrition*, Nutrition Society of India, 1972.

Kuznets S. *Modern Economic Growth*, Vakils Feffer and Simons (Pvt.) Ltd., Bombay, 1966.

Lyad, R. (Ed.) *Cost-Benefit Analysis, Penguin Modern Economic Readings, 1972.*

Marshall, A. Principles of Economics (8th Edition) Macmillan, London, 1930.

Mehta, M.M. *Human Resources Development and Planning with reference to Asia and Far East*, The Macmillan Company of India Ltd., 1976.

Meier, G.M. *Leading Issues in Economic Development Studies in International Poverty*, (II) Edition), Oxford University Press, Hongkong, 1975.

Mishra, S.N. *Project Evaluation with special reference to Education*, Institute of Economic Growth, New Delhi, 1972 (Mimeo).

National Nutrition Monitoring Bureau *Plan of Operation*, National Institute of Nutrition, Hyderabad, (Mimeo).

Newman, P. *Malaria Eradication and Population Growth with Special Reference to Cylon and British Guiana*, Bureau of Public Health, Economic Research Series, No. 10, 1965.

Nutrition Society of India *Proceedings of the Nutrition Society of India*, Seminar on Social and Economic Aspects of Nutrition, Nutrition Society of India, 1974.

O.E.C.D. *Social Change and Economic Growth*

Development Centre of the Organization for Economic Co-operation and Development, Paris, 1967.

Okun, B. & Richardson, R.W. *Studies in Economic Development, Holt Reinhart, Hert Winston*, London, 1961.

Park, K., Park, J.E. *Text Book of Preventive and Social Medicine*, Banaras Das Bhanot Publishers, Jabalpur, 1977.

Rao, V.K.R.V. *Food Nutrition and Poverty in India*, Vikas Publishing House (Pvt.) Ltd., New Delhi, 1982.

Robinson, C.H. *Fundamentals of Normal Nutrition*, Macmillan Publishing Co., Inc. New York, 1972.

Sanyal, R.K. *Population, Health and Development* National Institute of Health and Family Planning, New Delhi (Mimeo).

Sarveswara Rao, B., and Desh Pande, V.N. (Eds.) *Poverty — An. Interdisciplinary Approach*, Madras Institute of Development Studies, Madras, Somaiya Publications (Pvt.) Ltd., New Delhi, 1982.

Simons, G.B. *The Indian Investment in Family Planning*, An Occasional Paper of the Population Council, New York, 1971.

Singh, D.B. *Economics of Development*, Asia Publishing House, Bombay, 1971.

Shah, C.H., Sawant, S.D. Sanghvi, B.I. *Nutrition Gap—An Economic Analysis*, Himalaya Publishing House, 1983.

Srinivasan, S. *Management Process in Health Care*, Voluntary Health Association of India, New Delhi, 1982.

The Population Council *India—Country Prospects*, The Population Council, New York, 1974.

Tim Dyson, Nigel Crook (Ed.)	*India's Demography, Essays on the Contemporary Population*, South Asian Publishers (Pvt.) Ltd., New Delhi, 1984.
Vaidyanathan , A. (Ed.)	*Studies on Mortality in India*, Gandhigram Institute of Rural Health and Family Planning 1972.
Wykstra R.B. (Ed.)	*Human Capital Formation and Manpower*, Development, The Free Press, New York, 1971.

Articles :

Ahulwalia, M.S..	*"Rural Poverty and Agricultural Performance in India"*, The Journal of Development Studies, Volume Fourteen April 1978 No. 3, pp. 298-323.
Alan D. Berg	*"Nutrition as a National Priority*-Lessons from the Indian Experiment" *The American Journal of Clinical Nutrition*, November 1970, pp. 1396-1408.
Ashford, J.R. and Bunt, R.G.	*"The Distribution of Doctor Patient* Contacts in the National Health Service", *The Journal of Royal Statistical Association*, Vol. XXVII, 137, Part 3, p. 347.
Banerji, D.	*"Health as a Level for Development"* Development Dialogu, 1978, pp. 19-25.
Banerji, D.	*"Health and Population Control in the Draft Plan"*, Economic and Political Weekly, Special No. Vol. XXI, Bombay, August, 1978.
Barlow, R.	*"The Economic Effects of Malaria Eradication"*, The American Economic Review, Vol. LVII, May, 1967, No. 2.

Barry Popkin and Michael Lathana — "*Some Social and Economic Considerations in Developing a National Food and Nutrition Policy*", Presented at 2nd Asian Nutrition Congress, Manila, Phillippines, June, 17, 1973.

Barzel, Y. — "*Costs of Medical Treatment*" Comment, p. 936-3937, Reply by A.A. Scitovsky, p. 938-939, *The American Economic Review*, Vol. LVII, September, 1968, No. 4.

Belli, P. — "*The Implications of Malnutrition*" Economic Development and Cultural Change, pp. 1-23, 1971.

Burton, A. Weisbroad — "*Investment in Human Capital*" Journal of Human Resources, Summer, 1966, pp. 118—127.

Campbell, R.R. & Campbell, W. — "*Compulsory Health Insurance : The Economic Issue*", The Quarterly Journal of Economics, 1952.

Champakam, S. Srikantia, G. and Gopalan, C. — "*Kwashiorkar and Mental Development*" American Journal of Clinical Nutrition Vol. 21, 1968, pp. 844—870.

Correa, H. — "*Nutrition, Working Capacity, Productivity and Economic Growth*", Paper presented at Western Hemisphere Nutrition Congress II, Sam-Juan, Puerto kico, August, 1968.

Culyer, A.J. — "*On the Relative Efficiency of the National Health Service*", Kyklos, Vol. XXV, 1972.

Desai, S.R. & Mehta, N.R. — "*The Impact of Health Education on Acceptance of Family Planning Methods for spacing by Lower Socio-Economic Principarons, Urban Women*", The Journal of Family Welfare, 1976, pp. 3-9.

Devadas, P.R., Premkumari, S. Geetha, C. and Aruna, C. "*Prevalence of Nutritional and Non-Nutritional Disease Among 0-6 years and Old Children and their Nutritional Status*", The Indian Journal of Nutrition and Ditetics, Jan. 1983, pp. 1-9.

Ellowood, P.M. & Michael, E. Herbert. "*Health Care : Should Industry Buy it or Sell it*" ? Harvard Business Review, July-August, 1973.

Enke, S. "*The Economics of Government Payments of Limit Population*", Economic Development and Cultural Change, July, 1960.

Enke, S. "*The Economic Aspects of Slowing Population Growth*", The Economic Journal, 1960.

Enke, S. & Leibenstein, H. *An Exchange of Comments on Leibenstein's Paper "Pitfalls in Benefit Cost Analysis of Birth Prevention*" Population Studies A Journal of Demography, Vol. XXIV, No. 1, March, 1970.

Falh, I.S. "*The Economic Issues of Compulsory Health Insurance*", The Quarterly Journal of Economics, November, 1952.

Feldstein, M.S. "*Net Social Benefit Calculation and the Public Investment Decision*" Oxford Economic Papers, Vol. 16, March, 1964.

——— "*Hospital Bed Scarcity—An Analysis of the Effects of Inter-Regional Deficiences*", Economica, Vol. XXXII, No. 128, 1965.

——— "*An Econometric Model of the Medicare System*", Quarterly Journal of Economics, February, 1971.

——— "*The Welfare of Loss of Excess Health Insurance*", Journal of Political Economy, Vol. 81, No.2, Part I, March-April, 1973.

Friedman, B. "*An Econometric Model of the Model of the Medicare System Reply*", The Quarterly Journal of Economics, Vol. LXXXVIII, August, 1973.

Fuchz, V.R. "*The Output of Health Industry*" Milbank Memorial Fund Quarterly Vol. 44, 1966.

Goldsmith, G.A. "*Hunger and Malnutrition—Whose Responsibility*?", Nutrition Today, Vol. 7, No.4, July, 1970.

Gopalan, C. "*Diseases of Nutritional Deficiency of Children in South India*—A Review of Salient Conditions", *The Journal* of Pediatrics, Vol. 57, No.1, July, 1960, 89-100.

Hanemann, R. "*Benefit-Cost Analysis and Family Planning Programmes*", Population and Development Review, Vol. 2, No. 1, March, 1976, pp. 37-64.

Harell, S. & Nordber, O. (Ed.) "*Health and Another Development*" *Development Dialogue*, 1978.

Horrat, B. "*The Optimum Rate of Investment*" Economic Journal, pp. 751-753, December, 1958.

Klem, M.C. "*Costs of Medical Care to the Family*" Journal of the American Statistical Association, Supplement, March, 1933.

Kwon, J.K. "*On the Relative Efficiency of Health Care Systems*", Kyklos, Vol. XXVII, 1974.

Lane, J.R. and Law, L.B. "*Hospital Cost Functions*", The American Economic Review, June, 1979, Vol. LX, No. 3, pp. 379-395.

Leibenstein, H. "*Pit Falls in Benefit Cost Analysis of Birth Prevention*", Population Studies, A Journal of Demography, July, 1969.

Lindsay, C.M. "*Medical Care and the Economics of Sharing*", Economics, Vol.XXXVI, No. 144.

——— "*Measuring Human Capital Returns*", Journal of Political Economy, Vol. 79, No. 6, Nov-Dec., 1971.

Luft, H.S. "*The Impact of Poor Health on Earnings*" A Review of Economics and Statistics No. 1, Vol. LVII, February, 1975.

Mill, B. and Long F. and Paul, J. Fledstein. "*Economics of Hospital Systems : Peak Loads and Regional Co-ordination*" No. 2, May, 1967.

Mushkin, S.J. "*Health as an Investment*", Journal of Political Economy", Vol. LXX, Supplement, October, 1962.

New House, J.P. "*Towards a Theory of Non-Profit Institutions—An Economic Model of a Hospital*", The American Economic Review, Vol. LX, No. 1, March, 1970, pp. 64-74.

Newman, P. "*Malaria Control and Population Growth*" The Journal of Development Studies January, 1970, pp. 133-58.

Panikar, P.G.K. "*Fall in Mortality Rates in Kerala—An Explanatory Hypothesis*" Economic and Political Weekly, Vol. X, No. 47, Nov. 22, 1975.

	"*Resources not the Constrain on Health Improvement*—A Case Study of Kerala" Economic and Political Weekly, No. 44, Nov. 3, 1979.
Pauley, M. and Redish, M.	"*The Note for Profit Hospital as a Physician's Co-operative*", The American Economic Review, 1972.
Rafferty, J.R.	"*Patterns of Hospital Use : An Analysis of Short-run Variations* : Journal of Political Economy, Jan-Feb. 1971.
Reed, L.S.	"*The Ability to Pay for Medical Care*" Journal of the American Statistical Association, (Supplement) March, 1973.
Rosett, R.N. & Lievfu-Huang	"*The Effect of Health Insurance on the Demand for Medical Care*", Journal of Political Economy, Vol. 81, No. 2, Part I, March-April 1973.
Russel Louise, B.	"*An Econometric Model of the Medical System*", The Quarterly Journal of Economics, Vol. LXXXVII, August, 1973.
Streky, G.	"*Towards Another Development in Health*" Development Dialogue, 1978.
Weisbroad, B.	"*Costs and Benefits and Medical Research A Case Study of Poliomyelitis*" Journal of Political Economy, No. 3 May- June, 1971.
Verma, O.P.	"*Current Topic : Cost of Disease*" Journal of the Indian medical Association, Vol. 65, No. 2, Calcutta, July, 1975.

357

RETURN TO→ **PUBLIC HEALTH LIBRARY**
42 Warren Hall 642-2511

LOAN PERIOD 1 [redacted]	2	3
4	5 SEMESTER	6

ALL BOOKS MAY BE RECALLED AFTER 7 DAYS
ALL JOURNALS ARE NON-RENEWABLE
Return to desk from which borrowed

DUE AS STAMPED BELOW

JAN - 3 1992		
REC. PUBL. NOV 13 '91		
JAN 3 1992		
SEMESTER LOAN		
JAN - 4 1993		
SUBJECT TO RECALL		
MAY 27 '93		

UNIVERSITY OF CALIFORNIA, BERKELEY
FORM NO. DD26-7, 9m, 11/78 BERKELEY, CA 94720

PUBLIC HEALTH LIBRARY
JUL 8 1991

U.C. BERKELEY LIBRARIES
C035716709